Basic Human Values, Social Support and Financial Decision-Making

Dynamics in Friendship and Advice Networks

Dissertation
submitted to the
Faculty of Business, Economics and Informatics
of the University of Zurich

to obtain the degree of
Doktor der Wirtschaftswissenschaften, Dr. oec.
(corresponds to Doctor of Philosophy, PhD)

presented by

Martin Kindschi
from Davos, GR

approved in February 2019 at the request of

Prof. Dr. René Algesheimer
Prof. Dr. Michael J. Shanahan

The Faculty of Business, Economics and Informatics of the University of Zurich hereby authorizes the printing of this dissertation, without indicating an opinion of the views expressed in the work.

Zurich, 13.02.2019

The Chairman of the Doctoral Board: Prof. Dr. Steven Ongena

Acknowledgements

I would like to express my sincere gratitude to my advisor Prof. Dr. Rene Algesheimer. I would not be the person I am today, and would not have accomplished what I have without his continuous support of my PhD study, his patience, motivation, and visionary guidance. With the URPP Social Networks, he created an extraordinary environment for doing research. I could not have imagined having a better advisor and mentor for my PhD study and I thank God that He joined our paths when I started my PhD. Similarly, I would like to thank all members of the URPP Social Networks for their companionship, encouragement as well as their various insights and perspectives.

I am also truly grateful that Prof. Dr. Michael J. Shanahan joined the expert committee of my PhD thesis and I would like to thank him for all his support.

My sincere thanks also goes to my wife Mirjam and my parents Joos and Ursula. I could not have completed my PhD study without their unlimited support, their patience, trust and love, as well as their belief in me. There are no words that can describe my gratitude to them.

Contents

List of Figures

List of Tables

Chapter 1

Introduction

1.1 Dynamics in social networks and financial decision making

In many societies around the world, adolescents are socialized to become consumers. Teenagers draw on their social network structures to select and adapt their financial decision-making practices. At the same time, teenagers are using these practices to form and modify their social network structures.

In their social environment, adolescents can build many types of social networks, which are highly interdependent. Each type of social networks - along with its unique nature - might serve as a pool for the creation and maintenance of further social networks with different functions. The structures within these social networks are not exogenous, but depend on a variety of attributes and behaviors, including practices of financial decision-making. Every society on the planet has unique stereotypes for boys and girls, including specific assumptions about things that are important for them, or things for which they use their financial resources. Gender stereotypes such as these might be very salient for children to initiate relationships, but as they grow older, teenagers are learning to differentiate- and construct multi-dimensional prototypes of their ideal self-concepts. Eventually, these prototypes can include attributes such as demographics and values or behaviors such as financial decision-making practices, which might be used to build and shape social network structures accordingly.

But how are adolescents socialized to become consumers? First, teenagers might be intrinsically motivated to spend their financial resources instead of entrusting them to financial- or charitable institutions. In early adulthood, when people's values - and their underlying motivational goals - are fully formed, intrinsic motivations for people to choose certain purposes for financial resources are regarded as exogenous. However in adolescence, people are drawing on their social network structures to form these intrinsic motivations. In their quest to form their self-identity, teenagers might look to their peers and adopt consumption related values, including the motivation to express or enhance their self-concepts, to seek variety or understand different aspects of reality or to maintain harmony in their social networks.

Second, adolescents might also be extrinsically motivated to use their financial resources for specific purposes. In the process of validating their ideal self-concepts, teenagers are negotiating the corresponding prototypes with members of their social groups and thus establish norms in their social networks. As group identities are forming, they might even feature brands with matching identities, through which group membership can be expressed. The strength of extrinsic motivations such as these depends on teenagers' need for group affiliation, their dependence on social support and the degree to which these norms restrict teenagers in their freedom. Teenagers, whose consumption patters deviate from the corresponding group norms are at risk of being socially excluded. Therefore, teenagers need to learn the importance of remaining socially connected with friends and advisors who can provide emotional- and instrumental forms of social support.

Third, the teenage market is significant in terms of both size and spending volumes. Attracted by the abundance of opportunities in this growing market, organizations are designing campaigns with marketing activities specifically tailored to preoccupy teenagers' attention. As a result, adolescents are continuously and ubiquitously tempted with opportunities to spend their financial resources. Given the abundance of opportunities-, as well as the variety of intrinsic- or extrinsic motivations to spend financial resources, it is not easy for adolescents to cut back on their consumption patterns by evading or resisting such temptations, but deliquefying their financial resources in savings accounts instead. Therefore, it is very important to teach adolescents the capacities and skills that are necessary to manage their financial resources effectively.

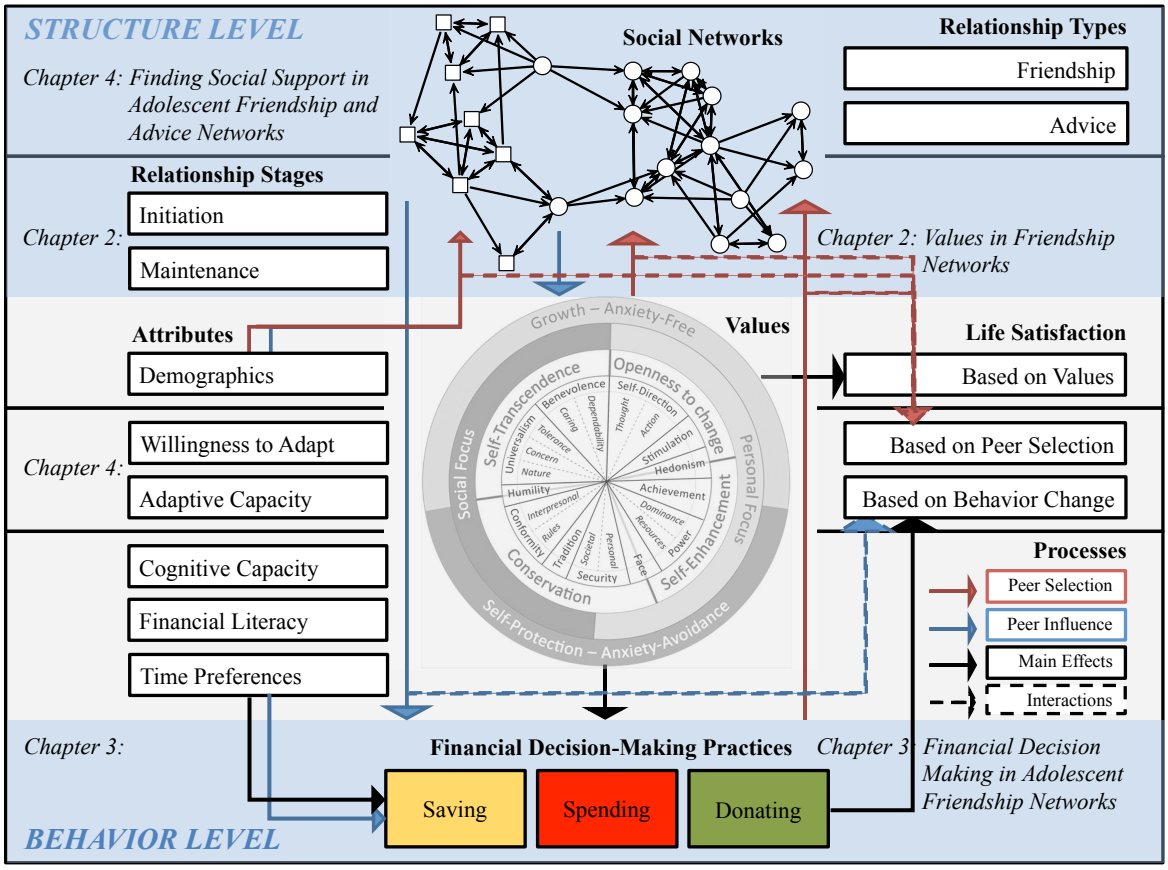

Figure 1.1: *Framework adapted from the theory of structuration [Giddens, 1984]*

Study 1: *Values in Adolescent Friendship Networks* ***(Chapter 2)***

Research questions

(1) How are adolescents' value priorities reflected in their life satisfaction?
(2) How salient are specific attributes for homohpily in friendship selection across different stages of the relationship's lifetime?
(3) Does additional similarity on specific attributes provide increasing, diminishing or no marginal utility compared to similarity on single attributes?

Core contributions

- Investigation of values in the dynamic context of social networks in school classes.
- Applying stochastic actor oriented network models (SAOMs) to account for the endogenous nature of values in adolescence.
- Differentiating between various types of homophily and the corresponding multi-dimensional interactions in consequitive stages of friendship network evolution.

Data

Longitudinal design: Three waves of adolescents' friendship network structures and value priorities based on a sample of 3'793 pupils in 160 school classes across two countries

Main results

- Adolescents in pursuit of growth related values such as openness to change or self-transcendence are more satisfied with their lives.
- Gender homophily is only salient in the friendship initiation stage, whereas value homophily gains inportance in the friendship maintenance stage.
- Self-transcendence and self-enhancement values are completely subsumed in gender stereotypes, whereas the marginal utility is increasing if adolescents are similar on openness to change values and diminishing if they are similar on conservation values.

Figure 1.2: *Overview of study 1: Values in Adolescent Friendship Networks*

Study 2: *Financial Decision-Making in Adolescent Friendship Networks* ***(Chapter 3)***

Research questions

(1) What are intrinsic motivations for adolescents to change financial decision-making practices of saving, spending and donating money?
(2) How effective are social norms regarding financial decision-making practices?
(3) What is the effect of specific skills and abilities on adolescents' self-efficacy to evade or resist temptations of spending money and put more financial resources in savings accounts instead?

Core contributions

- Applying stochastic actor oriented network models (SAOMs) to account for the respective endogeneity in the dynamics of financial decision-making practices and social network structures.
- Introduction of framework based on self-efficacy and goal-directed action to explain motivations, abilities and social contexts facilitating changes in financial decision-making practices.
- Adding the concepts of basic human values, self-efficacy and goal-directed action to consumer research.

Data

Longitudinal design: Three waves of adolescents' financial decision-making practices, friendship network structures, value priorities and abilities based on a sample of 3'793 pupils in 160 school classes across two countries

Main results

- We find evidence for three types of motivations to spend money: Variety-seeking, self-expression and social harmony, two types of motivations to donate money: Altruism and Self-expression as well as individualistic motivations to save money.
- Social norms regarding priorities to spend- and save money are highly effective, while social norms regarding donations have no effect.
- We find evidence that self-control, future oriented time preferences and cognitive abilities increase adolescents' self-efficacy to eliminate or resist temptations for spending and put more money to savings and that failure to do so increases adolescents' efforts in future trials.

Figure 1.3: *Overview of study 2: Financial Decision-Making in Adolescent Friendship Networks*

Study 3: *Finding Social Support in Adolescent Friendship and Advice Networks* ***(Chapter 4)***

Research questions

(1) Does adherence to social norms prescribing financial decision-making practices for adolescents reduce life satisfaction?
(2) Are friends and advisors providing better social support if they are selected based on a good match on attributes reflecting the nature of the corresponding relationship?

Core contributions

- Applying stochastic actor oriented network models (SAOMs) to account for endogeneity in social norms and social network structures.
- Introduction of framework based on the typology of social networks with salient homophily dimensions and the corresponding impact on life satisfaction.
- Adding the concept of social support to consumer research.

Data

Longitudinal design: 3 waves of adolescents' financial decision-making practices, friendship- and advice network structures, value priorities and life satisfaction based on a sample of 3'793 pupils in 160 school classes across 2 countries

Main results

- Adherence to social norms prescribing financial decision-making practices for adolescents does not significantly reduce life satisfaction.
- Assuming that the quality of social support is reflected in life satisfaction, friends provide better social support if they are selected based on the same gender but with different age levels, whereas advisors provide superior social support if they are selected based on similarities on self-monitoring capabilities.
- Assuming that life satisfaction measures the quality of social support, showing homophily based on self-transcendence and self-enhancement values is more adequate for the selection of friends, while homophily based on openness to change and conservation values is more appropriate for the selectin of advisors.

Figure 1.4: *Overview of study 3: Finding Social Support in Adolescent Friendship and Advice Networks*

The theory of structuration [Giddens, 1984] is encompassing each of the three empirical research papers contained in this dissertation, as illustrated in Figure 1.1. Teenagers draw on their social network structures to adapt their financial decision-making practices along with the underlying motivational goals and simultaneously use attributes and practices such as these to form and modify their social network structures. All papers are based on data from surveys commissioned in school classes.

Figures 1.2, 1.3 and 1.4 are summarizing each paper with regard to research questions, core contributions to consumer research, data and main findings. The first study (Figure 1.2) provides a framework explaining the endogenous nature of teenagers' motivational goals as well as their social network structures, which are both important drivers of financial decision-making. The second study (Figure 1.3) introduces a specific set of skills and abilities and investigates how motivational goals and abilities co-determine teenagers' self efficacy for evading or resisting temptations to spend their financial resources. The third study (Figure 1.4) provides a framework explaining the impact of selecting friends and advisors with a good match on attributes that best reflect the nature of the corresponding relationship on teenagers' life satisfaction.

An additional commonality linking the papers in this dissertation is the application of stochastic actor oriented network models (SAOMs) to investigate our research questions in Figures 1.2, 1.3 and 1.4. Thus, the following paragraphs provide a brief introduction to stochastic actor oriented network models, the terminology of which is used throughout this dissertation.

1.2 Modeling dynamics social network structures and financial decision making practices

Social network structures in school classes can be described in graphs. In social network analysis, graphs are mathematical- and visual representations illustrating how *nodes* are affiliated with each other, as represented through *ties*. Most approaches to model dynamic network structures focus on fitting a model to a specific series of observed networks. Depending on the research context as well as the research questions under investigation, there are two approaches that are predominantly used to model dynamics in social network structures.

[Robins and Pattison, 2001] and [Hanneke and Xing, 2007] introduced an exponential random graph model (ERGM) framework capturing the transition from a network observed at time t to a network observed at time $t+1$. ERGMs treat each network as a single observation and model the probability of observing a network with a specific structure of ties in relation to every possible alternative network - meaning every possible permutation of ties in a network with the same number of nodes - given a set of statistics on the network. In this framework, the evolution of network structures across time is modeled through stepwise ERGMs. The set of statistics can measure effects endogenous to the networks under investigation (endogenous processes) as well as the effects of exogenous covariates (exogenous processes).

An alternative approach to model network dynamics was introduced by [Snijders, 2001], which is commonly referred to as stochastic actor oriented network models (SAOM). As the terminology implies, this approach is based on the idea that *actors* are *nodes*, which have agency, and thus evaluate network structures in an effort to obtain a configuration of ties with the highest possible utility. In other words, actors are assumed to pursue their own objectives under the restrictions of their social context, and in doing so, actors themselves are part of each others' changing contexts. Similar to the ERGM framework, the utilities driving actors' decisions in SAOMs are determined by a set of statistics representing endogenous- or exogenous effects. In contrast to the ERGM framework, actors in SAOMs make their choices based on the present state, without using a memory of earlier states. Moreover, when using the SAOM approach, actors' choices are not restricted to the evolution of network structures, but include choices regarding changes in both network- and behavior space, as illustrated in Figure 1.5.

Both the research context - as well as the research questions this dissertation aims to investigate - call for the SAOM approach, whereby pupils are regarded as the primary agents pursuing their own goals under the constraints of social network structures in their school classes. The following paragraphs are devoted to a discussion of both approaches and their respective suitability to investigate research questions such as those listed in Figures 1.2, 1.3 and 1.4.

Unlike ERGMs, SAOMs are very qualified to model behavioral dynamics, as agents can make decisions regarding changes in behaviors. Financial decision-making practices allocating discretionary financial resources to specific purposes can be viewed as behaviors, which pupils can increase, decrease or keep at the current state, as suggested in Figure 1.5. Furthermore, pupils can increase or decrease the emphasis they place on specific values or keep their current motivations to achieve the corresponding goals. As such, these models are particularly appropriate to investigate intrinsic motivations, and their impact on decisions to change financial decision-making practices, as shown in Figure 1.3.

Both ERGMs and SAOMs are similarly qualified to capture the dynamic nature inherent in social networks. While ERGMs model the probability of observing networks with specific structures, SAOMs allow actors to make decisions regarding their social network structures and thus modify the structure of

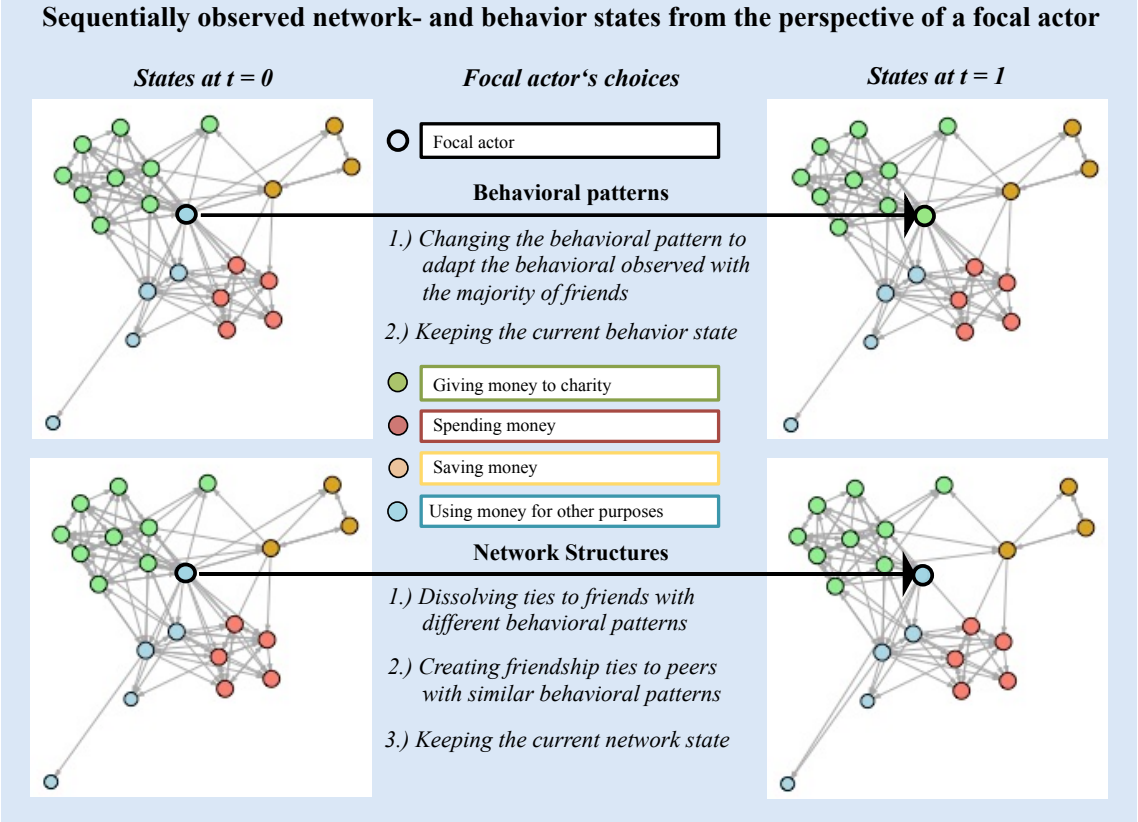

Figure 1.5: *Actor's choices in the framework of stochastic actor oriented network models (SAOMs)*

the relationships with their peers. In research contexts, where ties are affiliations between nodes without agency, or where the emergence and persistence of ties is the outcome of negotiations and collective decision-making, ERGMs are more appropriate, as they do not make assumptions such as those listed in the following section. However, in the research context of this dissertation, pupils have agency to form, maintain or dissolve ties to friends or invest resources into the formation and maintenance of ties to advisors or free said resources through the dissolution of corresponding ties. Therefore, both approaches are appropriate to investigate specific sets of attributes, and how they are considered when teenagers are selecting friends or advisors, as shown in Figure 1.4.

Ultimately, in this dissertation, SAOMs were applied primarily because of their capacity to capture mechanisms driving both behavior- and network structure changes simultaneously. Their multinomial nature allows for each process to be estimated net of the other. As such, they are very suitable to investigate all our research questions listed in Figures 1.2, 1.3 and 1.4.

1.2.1 Model assumptions

In the following paragraphs, we provide a comprehensive list of assumptions that need to be made when applying SAOMs and discuss their plausibility considering our research questions.

- In each social system, changes in network structures and behaviors are the outcomes of a Markov process, which means that the current state can determine future dynamics, as it contains information from the entire history of events. Thus, for all actors at each moment, network structure- and behavior changes depend on the current combination of network structures and behaviors.

This assumption is plausible if the combination of networks *x(t)*, behavioral variables *z(t)* and attributes *v(t)* can be regarded as a state which determines the corresponding endogenous dynamics in a reasonable approximation. As a result, applications on volatile phenomena or brief events are excluded. Thus, models based on the Markov assumption are not suitable if they are applied to investigate research questions, such as dymanics in e-mail exchange or movie theatre attendance. In contrast, these models are very qualified to investigate dynamics in social networks alongside lifestyle-related behaviors [Steglich et al., 2010a], covering all research questions of this dissertation, as listed in Figures 1.2, 1.3 and 1.4.

- The processes underlying each individual decision of every actor unfold in time steps of varying length, which could be arbitrarily small. While the underlying time parameter t is assumed to be continuous, the parameter estimation procedure assumes that network structures and behaviors are observed as states at two or more discrete points in time.

[Holland and Leinhardt, 1977] already proposed this assumption as a basis for longitudinal network modeling. According to this proposition, changes in network structures and behaviors are happening at stochastically determined discrete moments and thus in continuous time. As such, the total change between two sequential observations x_t and x_{t+1} is regarded as the result of many unobserved steps that occur between these observations. Thus, models based on this assumption are not appropriate to investigate dynamics in affiliations between groups, for which unobserved creations and dissolutions cannot be assumed at any given rate between observations. On the contrary, this assumption is plausible to study the processes under investigation in this dissertation, as actors can be assumed to have full capacity to change social network structures as well as lifestyle-related behaviors at any given rate.

Each step has two underlying processes. The first process determines the order, according to which actors are allowed to make decisions.

- The probability λ for the selection of the focal actor i, to get the opportunity to make a change in his or her network structure *net* or behavior *beh* is modeled through the rate function $\lambda_i^{net/beh}(\rho, \alpha, x, m) = \prod_m \lambda_{im}^{net/beh}$.
- At a given moment, when it is their turn to make a decision, actors are assumed to have agency regarding their outgoing ties as well as their own behavior. They may either change a tie through the initiation of a new relationship as well as the maintenance or dissolution of an existing relationship, or change their behavior by going one unit up or down. Therefore, coordinations between changes in the network structure and in the behavior are excluded.
- Conditional on the opportunity to make the respective decisions, changes in network structures and behaviors are modeled as distinct processes and are therefore governed by a priori unrelated parameters.

By default, the rate function $\lambda_{im}^{net/beh} = \rho_m^{net/beh}$ depends on the period m, in which case actors are selected at random at each period. While this is a reasonable approximation for the order according to which changes happen, social systems maybe composed of actors with different characteristics. Thus, denoting the estimation parameter by λ_h, the selection can also be made with probabilities depending on actor's attributes v such as inertia, yielding $\lambda_{im}^{net/beh} = exp(\sum_h \alpha_h v_{hi})$ or network positions x approximating intra- vs. extraversion, yielding $\lambda_{im}^{net/beh} = exp(\sum_h \alpha_h (\sum_j x_{ij}))$. Although the possibility to coordinate between changes in the network structures and behaviors is primarily excluded, in combination with the continuous time assumption, actors could coordinate decisions if the order according to which they have to wait for their turn is not determined by chance, but depends on their characteristics.

The second process determines the way actors evaluate all potential changes in their behavior and network space.

- The functions, which assign utility outcomes for specific changes in an actor's network structure $e_i^{net}(x) = \sum_k \beta_k^{net} s_{ik}^{net}(x)$ or behavior $e_i^{beh}(x, z) = \sum_k \beta_k^{beh} s_{ik}^{beh}(x, z)$, are referred to as objective functions. Actors evaluate utility outcomes of their objective functions for each behavior- or network state that results from every possible change in their behaviors or network structures. Thus actors are assumed to have access to the corresponding information.
- Actors sharing the same social context are governed by a common objective function.

In social contexts, which are limited to single school classes, there is no need to relax the assumption of complete information, as pupils have access to all necessary information through the communication with- or observation of peers in their school classes. In larger social contexts, this assumption can be relaxed by creating groups of social systems with similar properties (e.g. social groups similar in size or maturity, social groups with a common supervisor or affiliated with the same institution). If the dynamics are assumed to differ across the respective groups, it is necessary to impose corresponding restrictions on the common objective function.

- Objective functions are specified to include parameters according to specific dynamics that are assumed to take place in the behavior- $s_{ik}^{beh}(x, z)$ and network space $s_{ik}^{net}(x)$.

In their objective functions, actors consider how each change in their behavior or network structure would affect their utility. Parameters that are specified in the objective function are referred to as *effects*. They attach relative importance to each dynamic that is assumed to happen and thus determine actors' decisions. Section 3 of the Appendix provides descriptions for all effects that are used to specify models in this dissertation. The interpretation of effects is similar to parameters from a multinomial logistic regression.

- For the specification of objective functions, it is assumed that terminating a tie is the exact opposite of creating one, and that increasing the behavioral level by one unit generates as much utility as is lost when decreasing the behavioral level by one unit.

This assumption is not an accurate reflection of the reality in most social systems, including organizational foci such as school classes. For example, the increase in utility for a pupil, who creates a new tie to a specific peer, might not be as substantial as the decrease in utility if the same pupil were to terminate an existing tie to the corresponding peer. This can be modeled by two complementary components of the objective function. The creation function takes the value of $e_i^{net}(x) = 0$ for the dissolution of ties or $e_i^{beh}(x, z) = 0$ for decreases in the behavior. The endowment function takes the value of $e_i^{net}(x) = 0$ for the creation of ties or $e_i^{beh}(x, z) = 0$ for increases in the behavior.

Considering all of these assumptions, as well as the numerous possibilities to relax these assumptions through model specification, SAOMs are uniquely qualified to investigate our research questions in Figures 1.2, 1.3 and 1.4.

1.2.2 Model estimation

Having specified SAOMs based on theoretical considerations, results are estimated according to the meta-analytical method proposed by [Snijders and Baerveldt, 2003, Ripley et al., 2011]. Following an unconventional Method of Moments, the parameter values and standard errors for all effects in the chosen model specification are estimated separately for each school class.

[Bowman and Shenton, 1985] provide a review of the Method of Moments. Given the data Y and the parameter vector θ, the Method of Moments estimator is the parameter vector $\hat{\theta}$ for which the expected and observed values of *u(Y)* are the same, as imposed by the moment equation $E_{\hat{\theta}}(u(Y)) = u(Y)$. θ and *u(Y)* are usually vectors with the same dimension, whereby the solutions are locally- and often also globally unique. Using the delta method [Lehmann, 1999] and the implicit function theorem under regularity conditions, it can be proven that if $\hat{\theta}$ is a consistent solution to the moment equation, the asymptotic covariance matrix of the moment estimator is $cov_{\hat{\theta}} \approx \left(\frac{\delta E_\theta u(Y)}{\delta \theta}\right)^{-1} cov_\theta \left(\left(\frac{\delta E_\theta u(Y)}{\delta \theta}\right)^T\right)^{-1}$. Its components - the covariance matrix cov_θ as well as the partial derivatives matrix $\left(\frac{\delta E_\theta u(Y)}{\delta \theta}\right)^{-1}$ - are estimated using Monte Carlo methods. Parameter estimates $\hat{\theta}$ are obtained as the solution to the moment equation and standard errors $\sigma_{\hat{\theta}}$ are extracted as the square roots of the diagonal elements in this asymptotic covariance matrix.

Model specification is crucial. Not only does it affect a model's computation time, but the efficiency of the Method of Moments estimator also depends on the statistics that were specified in the model's utility function. But how are the models validated once parameters $\hat{\theta}$ with the corresponding standard errors $\sigma_{\hat{\theta}}$ have been separately estimated for all effects in the chosen model for each school class?

1.2.3 Model validation

In order to validate the estimated models, separate goodness of fit tests are performed for each school class. For each effect, $\hat{\theta}$ and $\sigma_{\hat{\theta}}$ are tested using Fisher's combined probability tests. Goodness of fit tests are performed according to the following procedure:

- Data are simulated based on auxiliary statistics such as in- or outdegree distributions, behavior distributions, as well as distributions based on geodesic distance, dyadic- or triadic census.
- Statistics of the simulated data are tested against the corresponding statistics of the observed data using Fisher's combined probability tests.

Fisher's combined tests are investigating if the null Hypothesis: $\theta = 0$ can be rejected in at least one school class [Mercken et al., 2010]. In two sided tests, the alternative Hypothesis is $\theta \neq 0$, while in Fisher's left- and right sided tests, alternative Hypotheses are $\theta < 0$ and $\theta > 0$ respectively.

Chapter 2

Values in Adolescent Friendship Networks

Abstract

Values - the motivational goals that define what is important to us - are guiding our decisions and behaviors everyday. Their importance is established in a long line of research investigating their universality across countries and their evolution over time. Existing research produced a multitude of frameworks linking values to sociologically relevant dimensions. So far, these mechanisms were considered to happen within each person independently. But life is social, and adolescence is a special stage in people's lives, as they are exploring various paths in an effort to build their self identity and find out who they are. Embedded in various social systems, adolescents turn to their affiliated peers for emotional support, for social validation, or to seek advice. Thus, they are constantly subject to interpersonal influence. In this article, we introduce a framework focused on the emergence and evolution of value priorities in the context of network dynamics. Drawing on stochastic actor-oriented network models, we analyze 73 friendship networks of adolescents. We find that a.) adolescents in pursuit of growth related values are more satisfied with their lives, b.) gender homophily is more salient for friendship creation, whereas satisfaction- and value homophily are more relevant for friendship maintenance, and c.) while some value priorities are subsumed in gender stereotypes, others show increasing or diminishing marginal utilities on similarity in same-sex friendships. The implications of our framework are discussed.

Keywords: Value homophily, value adaption, life satisfaction, stochastic actor-oriented network models, adolescent networks

Publication note: A version of this article has been accepted for publication in Network Science. Co-authors of this article are Alexander Ehlert, Jan Cieciuch, Eldad Davidov, Heiko Rauhut, Claudio Juan Tessone and Rene Algesheimer.

2.1 Introduction

What is the motivation behind our behavior and the decisions we make everyday? What can explain the choices we made in the past and what determines the paths we choose for our future? Essentially, values - or the motivational goals that define what is important to us, embody the potential to answering all of these questions. Values are guiding us along all the stages of our lives [Schwartz, 1992]. Similar to the way we learn our native language, to a large extent our values are formed through learning and observing what is important to our parents. Throughout the early stages of our lives, we set and adjust priorities in our value structure until they are part of our self identity, just like the unique ways we use to express ourselves in our native language. Similar to the misconceptions or misunderstandings we might have with people speaking different languages, our co-existance with people holding different values can incite disagreements or even conflicts. Every society on the planet is fostering specific sets of value priorities through the different ways, how behaviors or decisions of their members are sanctioned [Schwartz, 1999]. Thus, values are like a common language, through which we are bound to each other in our societies. Irrespective of whether people migrate in pursuit of better opportunities or whether they seek refuge in other countries, they all carry their own value priorities with them. Conflicts are emerging if there are substantial gaps in how immigrants and residents are prioritizing different values such as family constellations, hierarchies, traditions, conformity, freedom of speech, gender equality, social justice or the protection of the natural environment. So far, research on values investigated a variety of mechanisms linking values to sociologically relevant dimensions, all of which assume these processes to take place within people, who are independent of each other.

But life is social. People are embedded in various social systems at each stage of their lives [McPherson et al., 2001a]. While people cannot choose their family context, they can select their preferred education or workplaces they can identify with. Furthermore, people can join different communities, or choose political parties representing their opinions and attitudes. Thus, people are constantly exposed to interpersonal influence. Within each sphere, people can form networks, access knowledge to understand specific aspects of their reality and obtain feedback to validate their beliefs, preferences, attitudes, intentions or behaviors [Festinger, 1954]. Surprisingly, values have not yet been investigated in the context of social systems. Of particular interest is their formation during adolescence, as teenagers are exploring various paths in an effort to build their self identity. Thus, the goal of our paper is to provide insights on how values are co-evolving with network structures in adolescent social systems.

[Schwartz, 1992] introduced values as principles guiding people's beliefs, preferences and intentions and found that alongside decisions and behaviors [Bardi and Schwartz, 2003, Skimina et al., 2018], they can also affect life satisfaction [Bilsky and Schwartz, 1994]. Thus, it is highly relevant to understand how values emerge, how their multi-dimensional structure evolves, how their development is affected by specific attributes and how their evolution can impact life satisfaction.

According to [Aral et al., 2009], people are making decisions in social systems, where different types of homophily might be present. [Lazarsfeld et al., 1954] introduced the concept of homophily as people's tendency to affiliate with similar peers. [McPherson et al., 2001a] identified many salient dimensions on which homophily can occur, including not only race and ethnicity [Marsden, 1987, Shrum et al., 1988], gender [Marsden, 1987], and age [Fischer, 1982, Feld, 1982, Marsden, 1987], but also religion [Verbrugge, 1977], education [Marsden, 1987], occupation [Kalmijn, 1995], behaviors [Steglich et al., 2010b, Knecht et al., 2010, Ellwardt et al., 2012, Haye et al., 2013, Solish et al., 2010, Friemel, 2012] and values [Kandel, 1978, Lazarsfeld et al., 1954, Newcomb, 1961]. However, it is highly relevant to understand value adaption and value homophily as dynamic processes. First, as a result of their dynamic and endogenous nature, value homophily might be latent or hidden insofar as teenagers adjust values according to how they are emphasized by their peers [Aral et al., 2009]. Second, the presence of homophily can be observed both in the creation of new affiliations to similar peers and the dissolution of existing affiliations to dissimilar peers [Hallinan and Williams, 1989]. Third, not only are values inherently multi-dimensional by themselves, the impact of adolescents' similarity in values on their selection of affiliations might not be independent in the multi-dimensional space of attributes [Block and Grund, 2014].

Thus, in the current study we will investigate a.) how the change in value priorities is reflected in life satisfaction, b.) how adolescents change their value priorities, c.) how processes such as gender homophily or homophily based on life satisfaction and values are different for the creation of new affiliations compared to the maintenance of existing affiliations, and d.) whether homophilous tendencies based on gender and similarities in life satisfaction or values are independent or interact with each other. We will begin with our theoretical framework and Hypotheses, followed by a description of our data and variables in the model. Next we will present the results, and finalize with concluding remarks.

2.2 Theoretical Framework and Hypotheses

Teenagers can come into contact with peers in a wide variety of contexts. Thus, they are consantly exposed to information about how their peers behave, how they solve problems and how they are affiliated in these contexts. In each of these spheres, teenagers might display homophilous preferences and susceptibility to interpersonal influence to various extents. Among all the different types of relationships, the concept of friendship attracts the highest degree of attention in both theoretical- as well as empirical research [Fischer, 1982]. Although the term "friendship" has been used in a largely unsystematic way, friendship quality can generally be defined as the amount of time people voluntarily spend with each other [Bukowski et al., 1994]. This feature makes friendship relations particularly relevant for this study, as they are contexts, in which adolescents are most likely to talk about their value priorities or observe behavioral expressions of each other's values.

2.2.1 Dynamics in friendship networks

In which contexts are teenagers forming friendships? [Feld, 1981] introduces the concept of organizational foci, which are contexts, in which people draw- and evaluate information in order to validate cognitions and form relationships with their peers. Such foci are essentially pools of peers, with whom people can create and maintain friendships. They are defined as social, psychological, legal, or physical entities around which joint activities are organized. Through their impact on social interaction patterns, structural properties such as the size of such organizational foci can affect specific features of the social networks that evolve within these contexts [Hallinan, 1979].

Why does friendship emerge between acquaintances, and why does a teenager reach out to another as a friend? Social comparison theory [Festinger, 1954] suggests that people have an inherent need to validate their cognitions. Realizing that their own lifetime experiences do not yield sufficient insights, teenagers need to reach out to their peers and spend more time with them in order to obtain more comprehensive information.

Additionally, [Wright, 1984] suggests that friendships are rewarding on multiple dimensions and provides a taxonomy based on their self referent implications. First, friends are encouraging and helping to maintain an impression of one's competence. Second, friends behave in ways that facilitate the expression of one's self-concept and the recognition of important and highly valued features. Third, friends are stimulating and fostering an expansion or elaboration of one's knowledge and perspectives. Fourth, friends are expressing a personalized interest and concern through their helpfulness and cooperation in meeting one's goals and are thus enacting behaviors that are instrumental to achieve such goals. But the most important self referent implication - and a necessary condition for friendships to evolve - is that friends do not behave in ways that would threaten the integrity of one's self-concept. Thus, friends do not betray trust, cause embarrassment, or draw attention to points of weakness and self doubt [Kelvin, 1977].

How are friendships distinguished from other types of relationships? Are teenagers reciprocating friendship nominations of their peers? Are they trying to induce balance and encourage their friends to meet and spend more time together? People generally expect positive affective relationships such as friendships to be mutual, balanced in terms of social capital [Coleman and Cross, 2000] and emotionally supportive, even when such reciprocity does not exist [Krackhardt and Kilduff, 1999, Vaquera and Kao, 2008, Freeman, 1992]. [Festinger and Hutte, 1954] argue that people who perceive friendships as unbalanced, are experiencing feelings of uncertainty or instability.

Are teenagers more popular as friends if many other peers already nominated them as friends? Preferential attachment [Barabási and Albert, 1999] is consistently found as a significant property in many types of networks. Although teenagers could become less popular in evolving networks, if they have a limited capacity to receive links, or if they incur costs when receiving links [Amaral et al., 2000], we expect adolescents with a larger pool of existing friendships to be more popular.

2.2.2 Emergence and evolution of values

In a review on value theories and value research, [Rohan, 2000] identified considerable inconsistency in how values are defined. Theorists define values as motivational guides [Lewin et al., 1951], conceptions [Kluckhohn et al., 1951], properties of entities [Heider, 1958], and beliefs about the desirability or preferability of modes of conduct and states of existence [Morris, 1956, Feather, 1996, Rokeach, 1973]. There is general agreement that value systems contain a finite number of universally relevant value types, on

which people place relative importance, and that value systems need to have an underlying structure based on the motivational goals embodied by each value type.

The theory of basic human values defines values as trans-situational goals, which vary in importance, and serve as guiding principles for groups or in a single person's life [Schwartz, 1992]. The term "value structure" is used with reference to the classification of values according to the congruence or conflicts experienced when contemporaneously enacting those values, while the term "value priorities" describes the relative importance placed on different values. Their framework - as shown in Figure 2.1 - assumes that value systems can be structured by two motivational dimensions, which are cast in terms of conflicts, and fundamental human problems that need to be solved. The first dimension, labeled as "openness to change - conservation", highlights the conflict between the motivation to "follow one's own intellectual and emotional interests in unpredictable and uncertain directions" and the motivation to "preserve the status quo and the certainty it provides in relationships with close others, institutions, and traditions" (p. 43). The second dimension, labeled as "self-enhancement - self-transcendence", relates to the conflict between people's motivation to "enhance their own personal interests, (even at the expense of others)" and their motivation to "transcend selfish concerns and promote the welfare of others, close and distant, and of nature" (p.44). While the pursuit of values on opposite sides of these dimensions creates conflict, higher order values adjacent to each other can be negotiated and enacted simultaneously.

People have a capacity for meta-cognition, which means that teenagers are not only capable of talking about their value priorities but also that they are able to use value language to make arguments supporting their decisions or behaviors [Rohan, 2000, Schwartz, 1996]. Therefore, this study uses the framework of higher order values from the theory of basic human values.

Whereas prior research agrees that people's own value systems and their perceptions of others' value systems are intrapsychic cognitive structures, there is no consensus about how to understand perceptions of groups' value systems. Norms are beliefs about what the groups' value priorities should be. But are they perceived as the average of all group members' personal value priorities, those of the majority, those of friends, or those of group leaders or other significant members? This study follows a long line of research investigating friendship selection and social influence [Steglich et al., 2010b, Knecht et al., 2010, Ellwardt et al., 2012, Haye et al., 2013, Solish et al., 2010, Friemel, 2012, Ehlert et al., 2018]. In the following paragraphs, we take a more detailed look at each of the individual higher order values "self transcendence", "openness", "self enhancement", as well as "conservation" and then derive our Hypotheses.

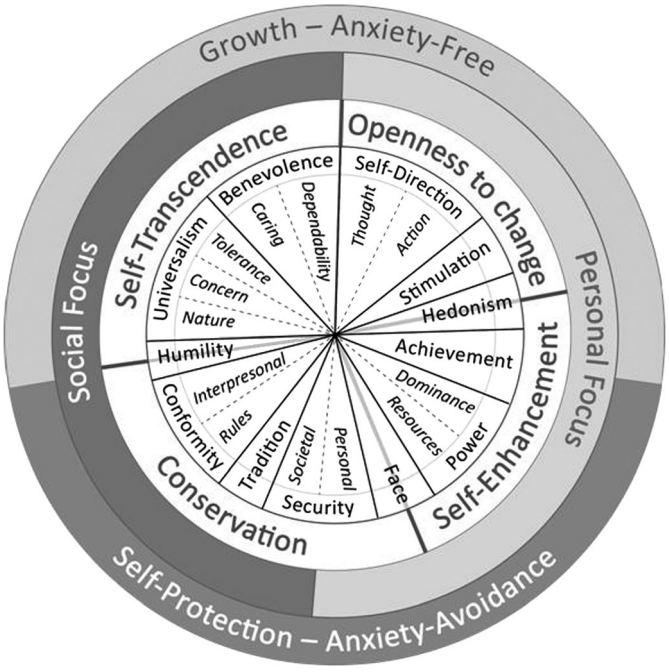

Figure 2.1: *The motivational circle according to the theory of basic human values [Schwartz et al., 2012]*

Self-transcendence

What is self-transcendence? This higher order value entails the importance of benevolence- and universalism values. The concern for the prosperity of groups composed of close alters is referred to as benevolence. It entails the need for positive social interactions [Schwartz and Bilsky, 1987, Kluckhohn, 1951] and affiliations [Korman, 1974, Maslow, 1959]. It emphasizes the preservation and enhancement of true friendship, mature love and prosperity for people with whom personal interactions are frequent. Individuals, who value benevolence are striving to be helpful, loyal, forgiving, honest, and responsible friends. Benevolence might be triggered if people realize that the welfare within their social systems increases through their prosociality. Individuals who value universalism are driven by the motivational goals of understanding, appreciation, tolerance, and protection for the welfare of all people and for nature [Maslow, 1959]. In contrast to benevolence values, the needs underlying universalism values become apparent when individuals come into contact with people outside their social group. Exposures such as these might trigger the realization that broad-mindedness, accepting different cultures, aiming for social justice and equality may help to avoid conflicts. Universalism needs might also be revealed if individuals become aware of the scarcity of natural resources and thus realize that unity with nature and protecting the natural environment will help to sustain the resources on which life depends.

Openness to change

This higher order value is composed of self-direction and stimulation values. Individuals who value self-direction are driven by the intrinsic motivation as described in the theory of self efficacy [Bandura, 1977, Deci and Ryan, 1975, White, 1959] such as creativity, curiosity, or discovering things on their own. Furthermore, they require autonomy and independence in interpersonal relationships [Kluckhohn, 1951, Kohn and Schooler, 1983, Morris, 1956], such as the freedom to choose their own goals, or to make up their mind independently. Those who value stimulation seek variety in order to maintain an optimal level of activation [Berlyne, 1960, Houston and Mednick, 1963, Maddi, 1961, Farley, 1986], and search for excitement, novelty, and challenge in life [Deci and Ryan, 1975].

Self-enhancement

What is self-enhancement? This higher order value entails the importance of achievement and power values. On the one hand, individuals who value ambition or personal success want to demonstrate competence according to social- and cultural standards of excellence in order to obtain resources for survival and social approval [Maslow, 1959, Rokeach, 1973, Scott and Scott, 1965]. On the other hand, [McClelland et al., 1953] defines the motivation for achievement as the goal to meet internal standards of excellence [Deci and Ryan, 1975]. Thus, individuals who value power are driven by the need to attain social status [Durkheim, 1964, Parsons, 1991], prestige, and control or dominance over people and resources [Korman, 1974, Schutz, 1958, Allport, 1961, Gordon, 1960]. Therefore, they strive for authority, wealth, social power, social recognition, or the preservation of their public image. The commonality between power values and achievement values lies in the emphasis social esteem. Whereas achievement values highlight the demonstration of competence in social interactions, power values focus on the attainment or preservation of a dominant position within the social system.

Conservation

This higher order value entails the importance of the security, conformity and tradition values. Individuals, who value security require safety, harmony, and stability on the society-, dyadic- and individual level [Kluckhohn, 1951, Maslow, 1959]. Security values can serve individual- or collective interests, and thus require a sense of belonging, stability for a group of alters with whom one identifies, emphasis on social order, reciprocation of favors, family security, or national security. In order to facilitate smooth everyday interactions, individuals who value conformity are restraining socially disruptive actions, inclinations or impulses, which might upset or harm others or violate social norms [Freud, 1933, Kohn and Schooler, 1983, Parsons, 1991]. As a result, such individuals want to honor parents and elders and place great emphasis on being obedient, self-disciplined, and polite. Finally, around the world, individuals in groups value symbols and practices as part of traditions and customs that represent their shared experience in the past as well as the fate they share in the future [Sumner, 1906]. Such practices can be religious rites, beliefs, and norms of behavior [Radcliffe-Brown, 1952] symbolizing a group's solidarity, expressing its unique positioning, and presumably providing a guarantee for its survival [Durkheim, 1964, Parsons,

1991]. Individuals, who value tradition emphasize acceptance of-, or respect and commitment for customs and ideas imposed by their culture or religion, such as humility, devotion, moderation, or acceptance of their place and role in life.

2.2.3 Evolution of values and their reflection in life satisfaction

Life satisfaction is defined as the degree to which one judges the quality of one's life favorably [Veenhoven and Ehrhardt, 1995]. People can make this judgement in the cognitive context of their own experiences or through social comparison [Festinger, 1954, Diener et al., 1985, Sagiv and Schwartz, 2000].

According to [Bilsky and Schwartz, 1994], people who attribute greater importance to value types representing growth needs - in particular universalism, benevolence, self direction and stimulation - are likely to have attained their goals. However, becoming aware of the inability to realize their goals, people are likely to attribute greater importance to achievement and power, or switch on a defense mechanism, which promotes the pursuit of conformity, security or tradition. If we assume that positive well-being is a consequence of goal realization, the association between value priorities and life satisfaction is expected to be positive for growth related values and negative for deficiency related values. Having measured life satisfaction as a state at the end of the process for value change, we can assume the above direction of causality. This classification of higher order values is in line with [Deci and Ryan, 1975]. They assume that the sense of well-being experienced by people, who prioritize intrinsic goals, as in self transcendence or openness values, is more positive compared to people in pursuit of extrinsic goals, as in self enhancement and conservation values.

Hypothesis 1 (H1)**.** *Thus, teenagers increasing their priority given to growth related values are more satisfied with their lives compared to teenagers in pursuit of deficiency related values.*

When adolescents consider changing their value priorities in the future, the most convenient way for them to find support for their decision would be to ignore their social environment and just evaluate their own current value priorities. If this imformation is considered exclusively, teenagers are primarily driven by the utility they expect to receive from shifting priorities in specific ways. Adolescents can estimate how much time they spend in pursuit of specific values and assess if it is worthwhile to increase the corresponding priorities. However, especially in light of the trade-offs that need to be made at the expense of other values, we make the following Hypothesis.

Hypothesis 2a (H2a)**.** *We expect that teenagers, who currently show higher emphasis on any given higher order value, are more likely to decrease the corresponding emphasis, instead of further increasing it or holding on to the way they currently prioritize those higher order values.*

Social validation [Festinger, 1954] provides teenagers with the necessary information to make informed decisions regarding the complex trade-offs associated with changes in their value structure. Thus, they might want to know the social meaning of their value priorities.

In a first scenario, teenagers are primarily subject to the exposure of observed value expressive behaviors or attributes of their current friends. However, they will only use this information, if they feel confident that their friends' attributes or behaviors are expressions of their true values and that they can approximate the extent to which they emphasize these. In this scenario, we assume that adolescents want to decide for themselves, whether and how far to shift their priorities. However, in their quest to find their ideal value structure, they are assumed to build- and update gender stereotypes, which include specific value structures for male and female friends. Thus, we expect teenagers to adapt their value priorities according to their currently perceived gender stereotypes depending on whether their friends are predominantly male of female.

Hypothesis 2b (H2b)**.** *We expect that teenagers adapt their value priorities according to how values are prioritized in the predominant gender stereotype among their friends.*

In a second scenario, value priorities are mainly communicated rather than expressed through other means. However, for adolescents to use this information, they have to rely on their friends to reveal their true value priorities. In this scenario, we assume teenagers to fully subcontract the decisions on how to adapt their value priorities to the judgement of their friends. We expect that teenagers believe in the wisdom of crowds phenomenon, assuming that the average extent to which their friends emphasize values is very close to their ideal, even if their separate value expressions are remarkably far from it [Lorenz et al., 2011].

Hypothesis 2c (H2c)**.** *Thus, we expect that teenagers shift their priorities towards the average expression of their friends value priorities.*

2.2.4 Homophily on the stages of friendship network evolution

In the previous section, we stated our expectations on how adolescents' priorities evolve and how these changes affect their life satisfaction. We now shift our focus towards understanding how much consideration is given to value priorities in the multi-dimensional space of attributes, which could potentially affect teenagers' friendship selection. First, adolescents can choose the attributes they consider in friendship selection. In our framework, we distinguish between manifest traits such as gender as well as latent traits such as life satisfaction or value priorities. Second, adolescents can choose whether they consider favorable expressions of their own- or their peers' traits as inclusion- or exclusion criteria to select friends or whether they prefer their friends to be similar on such traits. We assume they have a general preference for their attributes to be similar to those of their friends. Third, homophily is not only the result of a tendency to form friendships with similar peers, but also the consequence of a tendency to dissolve friendships with dissimilar peers.

At an early stage, where teenagers know nothing about their peers, we assume that gender - as a readily observable and permanent part of teenagers' self identity - is highly relevant for friendship formation [Eder and Hallinan, 1978].

However, at a later stage, adolescents gradually learn more about what is important to their friends, as they spend more time with them. Therefore, although similarity in values among peers generally seems to be a powerful explanation for homophily [Kandel, 1978, Lazarsfeld et al., 1954, Newcomb, 1961], it might be more salient for the maintenance of existing friendships. Spending more time with friends also creates more opportunities for teenagers to observe and interpret signs indicating how satisfied they are with their lives. In the first section, we hypothesize that changes in value priorities are associated with life satisfaction. First, adolescents might prefer the simplicity in interpreting expressions of the life satisfaction observed with their friends, compared to deriving value priorities from such expressions. Second, adolescents might even consider indicators for the life satisfaction of their friends as signals for their value priorities. Therefore, we propose the following Hypothesis for the respective impact of similarity on visible and invisible traits on the different stages of the friendship network evolution.

Hypothesis 3 (H3)**.** *While similarity on manifest traits is more important for teenagers to create new friendships to peers they haven't spent much time with, similarity on latent traits is more relevant for those friendships to persist.*

2.2.5 Interactions between different forms of homophily

The more time adolescents spend with each other in friendships, the more likely they are to realize that they can use more than one dimension to assess how similar they are compared to their friends. In the previous section, we hypothesize that gender is an attribute teenagers care more about during friendship initiation. However, we assume that gender homophily is still present during the stage of friendship maintenance, when the value priorities of their friends are revealed. [Block and Grund, 2014] provide arguments for the interaction of homophily on several attributes.

Under the assumption that adolescents' choices to select friends depend on the utilities they expect to gain from the corresponding ties, it is reasonable to assume that being similar on multiple dimensions is more rewarding than being similar on just one dimension. This line of thought would predict a positive interaction between value- and gender homophily. Conversely, a long line of research suggests that friendships, which constitute bridges between fragmented social subsystems, are beneficial because they provide access to different thoughts, ideas, and knowledge [Granovetter, 1977]. Thus, in contexts incentivizing knowledge exchange, adolescents might derive more utility from friendship ties to dissimilar peers, which would suggest that gender homophily negatively interacts with value homophily. However, [Block and Grund, 2014] argue that if attributes are primarily generating opportunities to meet peers, additional similarity on such attributes may not have any marginal impact on the likelihood for ties to emerge. This would imply that some attributes are vastly superior in their salience, such that similarity on other dimensions don't seem to matter.

The impact of similarity on value priorities might not interact with gender homophily, if adolescents assume the corresponding priorities to be correlated with gender. [Schwartz and Rubel, 2005] investigate gender differences in value priorities. Although they hypothesize that both men and women similarly experience the conflicts and compatibilities in values, they assume gender differences for value priorities.

Males are socialized to prioritize self enhancement values more strongly than females because they are given opportunities to gain and exercise power or to compete for personal success more frequently and are sanctioned more positively when they do so. Women are socialized to prioritize openness values

less strongly than men because women's roles are often more protected than men's [Eagly and Crowley, 1986]. Females are given fewer opportunities to take risks and are subject to more severe social sanctions if they get into trouble when doing so. Another distinctive criterium is agency, as females are supposedly socialized less strongly to strive for autonomy and are more likely to face negative sanctions when expressing self-direction of thought and action [Lykes, 1985].

Previous literature on self transcendence values does not find any gender-based differences for the universalism dimension, but females are assumed to be socialized more strongly to pursue benevolence values as many societies believe that females are sanctioned more positively to attend to the needs of others [Cieciuch et al., 2013, Markus and Oyserman, 1989]. Endorsing conformity to justify submissive behavior is assumed to be more self-congruent and adaptive for females as they are more likely to face negative sanctions when they act forcefully or assertively. While previous research on conservation values does not assume gender-related differences for the security dimension, females are often socialized more strongly to guard extisting traditions and institutions [Feltey and Poloma, 1991].

Significant gender differences in values would indicate that they are submerged in teenagers' perceived gender stereotypes. This would imply that similarity on value priorities does not matter, since it is assumed for same sex peers. However, we expect teenagers to derive more benefits from same sex friendships if they also have similar value priorities, because they have more common ground, on which they can build and maintain their relationship.

Hypothesis 4 (H4)**.** *Thus, we expect that homophily based on latent traits in the form of value priorities is strengthened by homophily based on manifest demographic traits such as gender.*

2.3 Data and method

Our study is designed as a longitudinal three-wave panel. Starting in October 2015 until December 2016, we commissioned three waves of surveys with pupils from both Switzerland and Poland, who entered compulsory- or voluntary secondary education on the 7th and 9th grades respectively. Thus, for all pupils participating in the study, the observation period starts at a point, where they are reassembled in new classes and assigned new teachers, such that overall, they are equally exposed to a new pool of peers, whom they did not know before.

2.3.1 Sites and samples

Schools can be considered to provide ideal environments to study the evolution of- and interdependencies between the processes this study sets out to investigate for many reasons. First, while the main function of schools is to provide an environment for children and adolescents to acquire cognitive and social skills, schools are also arenas for pupils to observe traits and behaviors of peers and thus validate their own. As a consequence, these processes display considerable dynamics. Second, while hierarchically nested class structures still dominate in primary education, pupils are no longer nested in single classes in secondary education, but to some extent can self-select into performance classes for specific subjects. Such an environment can foster collaboration and knowledge exchange. Third, while schools are embedded in the regulatory environment of the government, pupils in the environment of schools are protected from various external contexts, which could potentially co-determine their decision-making. Following exemplary studies from previous research [Mercken et al., 2010, Steglich et al., 2010b, Knecht et al., 2010, Solish et al., 2010, Ellwardt et al., 2012, Friemel, 2012, Haye et al., 2013], we conclude that this environment can be seen as an ideal context for our study.

2.3.2 Design

The waves in our longitudinal design are representing the number of times pupils were interviewed. The dynamics of the processes under consideration of this study are expected to be highest at the beginning of the group formation process [Friemel, 2012]. Thus, the timing, when surveys were administered to pupils is designed with proportionally increasing time windows between waves of data collection. The longitudinal design is intended to limit the exposure of respondents to surveys, while making sure that all dynamics in the processes under consideration are captured. Subjects in our compulsory and voluntary secondary school cohorts entered at the age of 12 or 13 and left at the age of 15 or 16. The sample sizes and compositions are summarized in Table 2.1.

2.3.3 Procedures

All procedures contributing to this work are in compliance with the ethical standards of the relevant national and institutional committees. The surveys commissioned in the various school classes were supervised by trained students. At each wave in each cohort, data was collected during a full school hour of 45 minutes. In order to eliminate method bias, data was collected using the same method across all waves for each pupil. Respondents surveyed in Switzerland were provided with questionnaires in paper and pencil form, while surveys commissioned in Poland were administered online. Pupils and their parents were informed about the design and purpose of the study several weeks before data collection started. Due to different regulations concerning data protection, we used different approaches to obtain parental consent for the participation of Swiss- and Polish pupils in our study. All parents in Switzerland were provided with an opt-out possibility. Out of all 1'193 pupils in the Swiss sample, none of the parents made use of that possibility. In contrast, parents in Poland were specifically asked to opt-in. From a total of 2'743 pupils sampled in Poland, approximately 67% of the corresponding parents provided their consent.

Table 2.1: **Panel size in Switzerland and Poland**

Country	**Wave**	**Panel**			**Analysis**		
		sites	classes	participants	sites	classes	participants
Switzerland	1	8	55	1183	7	44	890
	2	8	55	1193	7	44	890
	3	7	44	890	7	44	890
Poland	1	31	105	2733	6	29	670
	2	29	105	2743	6	29	670
	3	29	105	2700	6	29	670

In order to make the school classes in both countries comparable in terms of participation rates, we excluded 86 secondary school classes, where absences in any given wave exceeded 50%, due to the opt-in procedure. The result of this process can be seen in Table 2.1. The sample we used for our analyses includes 73 secondary school classes from Switzerland and Poland.

2.3.4 Measures

To investigate the emergence and development of adolescents' value priorities within friendship network structures of school classes, as well as the consequences of this co-evolution in terms of life satisfaction, this study uses the following measures.

Values

Our study uses two versions of the Portrait Value Questionnaire [Schwartz et al., 2012] to collect data on respondents' values. These versions only differ in the number of items contained therein. The common set of items used in both versions includes 13 items asking respondents to compare themselves to people described in short statements and to evaluate how similar they are to these people on a six-point scale ranging from "not similar at all" to "very similar" [Beierlein et al., 2014]. The Portrait Value Questionnaires used for the Swiss and Polish panels are listed in Section 2 of the Appendix.

Friendship

Data on networks were collected with a roster design. All names of the pupils in each class were displayed on a list, including those who did not participate in the survey or those absent from the class at the dates scheduled for the waves.

Pupils were asked "How strong is your friendship with your classmates?" They responded on a six point scale ranging from "no friendship at all" to "very close". In line with the friendship quality scale [Bukowski et al., 1994], pupils were consistently given instructions to determine the strength of friendship by the proportion of leisure or recreation time they voluntarily spent together. The weighted friendship scale we used in our study is shown in Section 2 of the Appendix. However, the methodology we applied in our analyses is restricted to binary data. All possible thresholds for dichotomization were tested. Thresholds above and below the cut-off level five on the six point scale are creating very sparse or dense networks respectively, which result in little network dynamics. Therefore, the weighted

friendship networks were dichotomized at the cut-off level five. Consequently, pupils' decisions do not only cover situations, where friendships are created from non-existing relationships, but also situations, where casual relationships are upgraded to friendships. Similarly, pupils' decisions are not restricted to situations, where existing friendships are dissolved completely, but also include situations, where existing friendships are downgraded to casual relationships.

Life Satisfaction

This study is based on the five dimensional satisfaction with life scale [Diener et al., 1985] with a focus on general perceived life satisfaction. Therefore, we use the following single item to measure life satisfaction: "All things considered, how satisfied are you with your life these days". Pupils were given consistent instructions to determine their satisfaction by considering all possible spheres of their lives. The scale on general perceived life satisfaction is shown in Section 2 of the Appendix.

2.3.5 Analytical approach

In order to investigate the dynamic processes of value change in the context of friendship networks, we draw on stochastic actor-oriented network models (SAOMs). They were introduced by [Snijders, 2001, Snijders et al., 2010] and implemented in RSiena by [Ripley et al., 2011]. Changes in attributes and network ties between panel waves are at the core of these models. On the one hand, attributes of actors can change in time. Such changes can either be the outcome of actors' characteristics (e.g., attributes change because of attributes the actors currently possess) or of their peers' characteristics (e.g., attributes change because of attributes that actors' friends possess). On the other hand, relationships between actors can emerge or disappear in time. Such changes in the network structure can be the outcome of an actor's structural position within the network, (e.g., forming ties to people because they are friends of friends), an actor's characteristics (e.g., attractiveness of actors because of attributes they possess), or characteristics shared by actors (e.g., attractiveness of actors because of similarity in attributes). SAOMs have been used in a wide variety of contexts to study network dynamics and behavior change [Van de Bunt et al., 2005, Van Duijn et al., 2003, Schaefer et al., 2011] or the co-evolution of networks and actor behavior [Checkley and Steglich, 2007, Burk et al., 2007, Pearson et al., 2006, Steglich et al., 2010b, Lewis et al., 2012].

Estimation procedure

Modeling the change of attributes and network structure, SAOMs are applied to longitudinal attributes as well as complete, directed and longitudinal networks. Although these types of data are measured at discrete waves, SAOMs assume a continuing underlying process with attribute- or network tie changes occurring sequentially. Actors can make decisions regarding their attributes (e.g., increasing- or decreasing their value priorities, as well as keeping their current state) or their network structure (e.g., creating or dissolving network ties, as well as keeping their current state). The term used for each individual decision an actor makes is a mini-step. A mini-step is modeled by two underlying processes.

In the first process, the actor who is allowed to make a decision, is selected through a rate function. Using a period-wise constant rate function, we assume no difference in the rate of change between actors. In the second process, the selected actors evaluate all potential changes in their attributes and personal networks. Assuming specific dynamics to happen, an objective function including the corresponding parameters is specified, and actors consider how each change in their attributes or network structure would affect their utility regarding these parameters. For factors that are combined in the objective function and thus determine actors' decisions, SAOMs use the term 'effects'. Homophily is an example for such effects. If the parameter for homophily is positive, actors are more likely to create or maintain ties to other actors, who are similar to themselves. Thus, actors compare the outcome of the objective function for each attribute- or network state that results from every possible change in attributes or network structure. At the conclusion of each mini-step, the attribute- or network states, which are most likely to be chosen by actors are those with the highest values in the objective function. In a series of mini-steps connecting empirical observations, parameters that attach relative importance to different effects are estimated. The interpretation of effects is similar to parameters from a multinomial logistic regression, where θ is the log odds ratio, as they co-determine the relative likelihood of a mini-step to be realized. For a non-technical introduction to the method, including different methods of parameter estimation, we refer to [Snijders, 2001, Steglich et al., 2006, Snijders et al., 2010].

We decided to use SAOMs for their capability to capture the mechanisms that drive attribute- and network change simultaneously. First, the dynamics of attributes and networks are conditioned on the first observation. Therefore, no assumptions regarding the respective states of equilibrium have to be made. Second, the multinomial nature of the models allows for each process to be estimated net of the other.

Model specification

The structural effects we include in our analyses have been selected on the basis of theoretical considerations based on past experience with these models, and based on results from previous studies using this method with similar data [Steglich et al., 2010b]. *Outdegree* determines the average degree, and can be compared to an intercept in regression analyses. *Reciprocity* $s_i^{net}(x) = \sum_j x_{ij}x_{ji}$ is the tendency of actors to reciprocate ties to each other. *Transitivity* or geometrically weighted edgewise shared partners $s_i^{net}(x) = \sum_{j=1}^{n} x_{ij}e^{\alpha}\{1-(1-e^{-\alpha})^{\sum_{h=1}^{n} x_{ih}x_{hi}}\}$ models the tendency of actors to be linked to friends of friends. *Indegree popularity* $s_i^{net}(x) = \sum_j x_{ij}\sum_h x_{hj}$ controls for dispersion in indegrees and investigates if somebody who already has a lot of incoming ties is more popular as a target for further friendship nominations. *Linear shape* $s_i^{val}(z) = z_i$ controls for the general tendency to change one's value priorities.

The first focus of this article is on value change. In all analyses reported in Tables 2.2 to 2.5, models in the columns denoted as "value susceptibility" include the *average similarity* effect, which measures the tendency to adapt one's value priorities in order to become more similar to one's friends. Instead of the average similarity effect, models in columns denoted as "value resistance" include the *quadratic shape* effect, which measures the tendency to change one's value priorities depending on one's current emphasis on specific values. Additional models further include *effects from sex* and the *average alter sex* effect, or *effects from satisfaction* and the *average alter satisfaction* effect. The former effects estimate gender differences in value change and the tendency to change one's value priorities depending on whether friends are primarily male or female. The latter effects estimate how value change is reflected in life satisfaction and how value change depends on the average life satisfaction of one's friends.

Moreover, the change in priorities on a specific value dimension might be a function of the change in one's own priorities- or the priorities of one's friends on other value dimensions. Therefore, we additionally report results of models investigating the interdependencies in the co-evolution of all higher order values. While the models reported in "value susceptibility" columns include *effects from other higher order values*, those reported in "value resistance" columns additionally show effects for *average higher order values of alters*. The former effects estimate the tendency to change one's priorities on a specific higher order value based on one's current priorities on other values. The latter estimates this change based on the average priorities given to other values by one's peers. Results are listed in Tables 6.14 to 6.17 of the Appendix.

The second focus of this article is on value homophily, as measured by dyadic effects indicating the similarity between actors. Such effects capture the tendency for friendship to form between actors who are similar on certain attributes. In all analyses, we include *ego-, alter-, and dyadic effects* for *value priorities*, which refer to the tendency to send or receive friendship ties based on such priorities, or to the preference for having friendships with peers, who are similarly prioritizing values. Additional models further include an effect for having the *same sex*, as well as *ego-, alter-, and dyadic effects* for *life satisfaction*. The statistic for the former effect is equal to one, if sender and recipient of the tie are of the same gender and zero otherwise. We excluded ego- and alter-effects for gender from the analyses. First, we did not find any theoretical support for their inclusion in literature. Second, their exclusion could be empirically justified in our data. The latter effects refer to the tendency to send or receive friendship ties based on life satisfaction, or to the preference for having friendships with peers, who are similarly satisfied with life.

Furthermore, we report results on interactions between the homophily effects in the analyses. The statistics for both interaction effects are calculated as the product of the respective statistics for *value similairty* effects with effects for *same gender* or *satisfaction similarity*. Thus, the relevant statistics for the interaction effects are 0 if people are of different sex or at the opposite end of the life satisfaction scale. In contrast, they take non-zero values if individuals are somewhat similar on life satisfaction or have the same gender.

The objective function for decisions regarding network structures is given as $e_i^{net}(x) = \sum_k \gamma_k^{net} s_{ik}^{net}(x)$. It assumes that the utility actors can derive from creating a new tie is the same as the utility they expect to lose if they were to dissolve that tie. However, the models in the third columns denoted as "phase transition" do not make this assumption. Instead, they divide the friendship network evolution process in

two stages. At the first stage, actors only decide whether to create new friendships or not. At the second stage, actors only decide whether to maintain existing friendships or dissolve such ties. Therefore, the evaluation function of these models is replaced by *gratification* and *endowment* functions, as indicated in the column labeled "Function". The gratification function is a modification of the objective function giving zero weight to the dissolution of ties, while the endowment function assigns zero weight to the creation of ties. These effects are revealing whether actors' homophilous tendencies are more relevant for friendship selection vs. ignorance, or for friendship maintenance vs. dissolution.

The objective function for decisions regarding changes in value priorities is given as $e_i^{val}(x) = \sum_m^{M-1} \sum_i^n s_{ik}^{val}(x(t_{m+1}) - x(t_m))$. It assumes that the utility actors expect to gain by increasing their current priorities on any given value is exactly offset by the utility they would lose if they were to lower their priorities on the corresponding value to the same extent. The models reported in the "phase transition" columns of Tables 6.14 to 6.17 of the Appendix use modified objective functions including *gratification and endowment effects from other values*. The gratification function is a modification of the corresponding objective function giving zero utility to a decrease of value priorities, while the endowment function assigns zero utility to an increase in value priorities. These effects are estimating whether an increase in priorities on a specific value depends on changes in priorities on other values more strongly compared to a corresponding decrease.

Meta-analytical procedure

Our research design, where school classes are hierarchically nested in schools, calls for a two stage procedure. In the first stage, we use an unconventional Method of Moments to estimate the model parameters for each school class separately. Subsequently, goodness of fit tests are performed on the results for each class. Goodness of fit tests are simulating data on auxiliary statistics. In order to compare the data simulated using these auxiliary statistics with the observed data, they must be different from the statistics used for parameter estimation. Complying with the standard for publications using SAOMs, we require adequate fit on the auxiliary statistics of indegree- and higher order value distributions, which was achieved for 50 out of 63 secondary school classes. In the second stage, the separately estimated parameters for each class are aggregated according to the meta-analytical method proposed by [Snijders and Baerveldt, 2003, Ripley et al., 2011]. In this meta-analysis, the mean and variance of the θ vector - the true parameter values for all effects in the chosen model specification - are estimated across all school classes in both countries. Results are reported in columns denoted accordingly, whereby the upper value is the mean μ_θ and the lower value represents the standard error σ_θ. For any given effect, μ_θ is interpreted as the log odds ratio. If μ_θ is estimated at 0.5, the odds ratio is $e^{\mu_\theta} = 1.65$, so the probability for this effect to be present is 65% higher compared to the probability for this effect to be absent. Then, the parameters μ_θ and σ_θ are tested using Fisher's combined probability tests, investigating for each effect, if the null Hypothesis: $\theta = 0$ can be rejected in at least one school class [Mercken et al., 2010]. The tests are reported in each column denoted accordingly, whereby the upper values are results of two sided tests with the alternative Hypotheses $\theta \neq 0$ and the lower values are results of Fisher's left- and right sided tests with alternative Hypotheses $\theta < 0$ and $\theta > 0$ respectively.

2.4 Results

The following section is structured according to the higher order values. Results on a subset of effects used for Hypothesis testing are reported in Tables 2.2 to 2.5. Results of the corresponding goodness of fit tests are listed at the bottom of each table. All meta-analyses including the complete lists of effects are shown in the corresponding Tables 6.2 to 6.21 of the Appendix, as indicated in the column denoted as "Appendix".

2.4.1 Self-transcendence

The results provide support for Hypothesis 1, as actors with a higher life satisfaction appear to show more emphasis on self transcendence values.

Hypothesis 2a is supported by our data. Actors currently showing very high or very low emphasis on self transcendence are 25% (log odds ratio = -0.266, odds ratio = 0.766) more likely to adjust their value priorities towards moderation, or to keep their current value priorities instead of diverging to more extreme value priorities. The data provide partial support for Hypothesis 2b, as actors in a social environment, which is dominated by female friends, are approximately 70% (log odds ratio = 0.526,

Table 2.2: **Self transcendence values (stv) and friendship networks**

Hypotheses	*Effects*	*Functions*	**value susceptibility** μ_θ / σ_θ	fisher's p / fisher's [l,r] p	**value resistance** μ_θ / σ_θ	fisher's p / fisher's [l,r] p	**phase transition** μ_θ / σ_θ	fisher's p / fisher's [l,r] p	*Appendix*
	gender based selection:								
H3	same gender	endow					0.125 0.127	[0.816 , 0.122]	
H3	**same gender**	**create**					0.685 0.091	*** [1 , 0]	
H4	**same gender**	**eval**	0.391 0.055	*** [1 , 0]	0.357 0.067	*** [1 , 0]			Table 6.6
H4	self-transcendence similarity	eval	0.099 0.235	[0.949 , 0.638]	0.205 0.260	[0.933 , 0.438]			
H4	I(gender*self-transcendence)	eval	0.019 0.320	[0.719 , 0.749]	-0.113 0.350	[0.751 , 0.912]			
	satisfaction based selection:								
H3	satisfaction similarity	endow					0.147 0.238	[0.742 , 0.264]	
H3	**satisfaction similarity**	**create**					0.334 0.205	† [0.944 , 0.062]	
H4	**satisfaction similarity**	**eval**	0.307 0.089	*** [0.998 , 0.014]	0.429 0.113	*** [1 , 0.006]			Table 6.10
H4	self-transcendence similarity	eval	0.071 0.185	[0.895 , 0.664]	0.112 0.210	[0.926 , 0.436]			
H4	I(satisfaction*self-transcendence)	eval	0.557 0.770	[0.886 , 0.586]	0.665 0.883	[0.868 , 0.41]			
	value based selection:								
	self-transcendence alter	endow					-0.000 0.074	[0.797 , 0.776]	
	self-transcendence ego	endow					0.326 0.440	[0.416 , 0.102]	
H3	self-transcendence similarity	endow					-0.064 0.460	[0.775 , 0.763]	
	self-transcendence alter	create					0.018 0.070	[0.657 , 0.598]	
	self-transcendence ego	create					-0.380 0.458	[0.067 , 0.446]	
H3	self-transcendence similarity	create					0.125 0.427	[0.763 , 0.695]	Table 6.2
	self-transcendence alter	eval	-0.035 0.028	[0.145 , 0.97]	-0.020 0.035	[0.415 , 0.846]			
	self-transcendence ego	**eval**	-0.071 0.035	* [0.001 , 0.886]	-0.076 0.035	* [0.043 , 0.973]			
H3	self-transcendence similarity	eval	0.184 0.151	[0.955 , 0.136]	0.113 0.174	[0.848 , 0.365]			
	self-transcendence change:								
	linear	**eval**	0.242 0.037	*** [1 , 0]	0.309 0.053	*** [1 , 0]	0.279 0.045	*** [1 , 0]	
H2a	**quadratic**	**eval**			-0.266 0.045	*** [0 , 1]			
H2c	**average similarity**	**eval**	2.482 0.401	*** [1 , 0]			2.019 0.431	*** [1 , 0]	
	effect from gender	**eval**	0.302 0.076	*** [1 , 0.002]			0.266 0.089	*** [1 , 0.026]	Table 6.6
H2b	**average alter gender**	**eval**			0.526 0.181	*** [1 , 0.022]			
H1	**effect from satisfaction**	**eval**	0.041 0.025	† [0.995 , 0.2]			0.048 0.027	† [0.991 , 0.192]	Table 6.10
H2b	average alter satisfaction	eval			-0.091 0.137	[0.696 , 0.966]			
	goodness of fit:		μ_p / σ_p	χ^2 test [converge / fit]	μ_p / σ_p	χ^2 test [converge / fit]	μ_p / σ_p	χ^2 test [converge / fit]	
	GOF (outdegree)		0.319 0.295	*** [58 / 46]	0.318 0.308	*** [55 / 39]	0.338 0.287	*** [46 / 36]	
	GOF (values)		0.554 0.290	*** [58 / 55]	0.601 0.348	*** [55 / 50]	0.556 0.305	*** [46 / 43]	

Fisher's two-sided test: $^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$, $^{\dagger}p < 0.1$

odds ratio = 1.692) more likely to increase their priorities on self transcendence, instead of decreasing them or holding on to their current priorities. However, actors do not change their priorities on self transcendence, if the majority of their friends are satisfied with their lives. The data fully supports Hypothesis 2c, as actors are 11 times (log odds ratio = 2.482, odds ratio = 11.965) more likely to adapt their value priorities towards the average of their friends, instead of diverging or keeping their priorities.

We could only find enough evidence in the data to partially support Hypothesis 3. While friendships are more likely to be initiated if peers have the same gender, same-sex friendships are not more likely to persist. However, neither does placing similar emphasis on benevolence and universalism make friendships more likely to emerge, nor does it facilitate their persistence. Furthermore, in contradiction with our expectations from Hypothesis 3, similarity on a latent trait such as life satisfaction is not as salient for the maintenance of existing friendships as it is for the creation of new friendships.

Hypothesis 4 suggests that actors' similarity in self transcendence values might increase their likelihood to form friendships with peers of the same gender. On average, actors only miss every third opportunity to create friendships to same sex peers. Log odds ratios between 0.391 and 0.357 and odds ratios between 1.478 and 1.529 indicate that creating ties to same-sex peers is 50% more likely than creating ties to peers of the opposite sex or dissolving ties to same-sex peers. However, the results do not confirm Hypothesis 4. Female actors show a higher emphasis on self transcendence values. Therefore,

it appears that the emphasis actors place on these values is part of existing stereotypes assigned to the genders. As a result, when actors are preselecting friends based on their gender, value priorities are ignored, as girls are believed to be socialized into having higher priorities for self transcendence values than boys.

Table 2.3: **Openness values (opv) and friendship networks**

			value susceptibility		**value resistance**		**phase transition**		
Hypotheses	*Effects*	*Functions*	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	*Appendix*
	gender based selection:								
H3	same gender	endow					0.305 0.186	[0.81 , 0]	
H3	**same gender**	**create**					0.556 0.146	*** [0.992 , 0]	
H4	**same gender**	**eval**	0.404 0.054	*** [1 , 0]	0.460 0.060	*** [1 , 0]			Table 6.9
H4	openness similarity	eval	-0.110 0.265	[0.85 , 0.807]	-0.185 0.320	[0.72 , 0.882]			
H4	**I(sex*openness)**	**eval**	0.528 0.326	[0.951 , 0.349]	0.746 0.401	† [0.972 , 0.16]			
	satisfaction based selection:								
H3	satisfaction similarity	endow					0.403 0.349	[0.675 , 0.048]	
H3	satisfaction similarity	create					0.002 0.241	[0.5 , 0.408]	
H4	**satisfaction similarity**	**eval**	0.360 0.104	*** [1 , 0.009]	0.301 0.144	* [0.995 , 0.106]			Table 6.13
H4	**openness similarity**	**eval**	0.308 0.218	[0.992 , 0.205]	0.711 0.333	* [0.998 , 0.2]			
H4	I(satisfaction*openness)	eval	-0.486 0.836	[0.588 , 0.853]	-0.720 1.248	[0.456 , 0.793]			
	value based selection:								
	openness alter	endow					-0.049 0.098	[0.505 , 0.946]	
	openness ego	endow					0.565 0.621	[0.458 , 0.019]	
H3	openness similarity	endow					0.389 0.585	[0.966 , 0.523]	
	openness alter	create					0.011 0.099	[0.799 , 0.694]	
	openness ego	create					-0.769 0.635	[0.005 , 0.614]	
H3	openness similarity	create					0.185 0.608	[0.738 , 0.673]	Table 6.5
	openness alter	**eval**	-0.078 0.035	* [0.112 , 0.944]	-0.069 0.041	† [0.177 , 0.952]			
	openness ego	eval	-0.063 0.041	[0.017 , 0.834]	-0.036 0.048	[0.188 , 0.674]			
H3	**openness similarity**	**eval**	0.300 0.172	. [0.992 , 0.133]	0.425 0.206	* [0.995 , 0.074]			
	openness change:								
	linear	**eval**	0.232 0.038	*** [1 , 0]	0.285 0.050	*** [1 , 0]	0.242 0.051	*** [1 , 0]	
H2a	**quadratic**	**eval**			-0.273 0.047	*** [0 , 1]			
H2c	**average similarity**	**eval**	2.293 0.351	*** [1 , 0]			2.126 0.456	*** [1 , 0]	
	effect from gender	**eval**	0.150 0.074	* [0.987 , 0.212]			0.129 0.099	[0.938 , 0.334]	Table 6.9
H2b	average alter gender	eval			0.240 0.161	[0.967 , 0.194]			
H1	**effect from satisfaction**	**eval**	0.047 0.027	† [0.986 , 0.213]			0.055 0.037	[0.955 , 0.346]	
H2b	average alter satisfaction	eval			-0.021 0.131	[0.836 , 0.894]			Table 6.13
	goodness of fit:		μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	
	GOF (outdegree)		0.333 0.310	*** [57 / 44]	0.341 0.316	*** [47 / 36]	0.337 0.302	*** [40 / 30]	
	GOF (values)		0.673 0.269	*** [57 / 56]	0.755 0.278	*** [47 / 46]	0.676 0.267	*** [40 / 39]	

Fisher's two-sided test: $^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$, $^{\dagger}p < 0.1$

2.4.2 Openness

The results provide sufficient evidence to confirm Hypothesis 1, as actors with a higher life satisfaction appear to shift their emphasis on openness values upwards.

We found enough evidence in the data to support Hypothesis 2a for openness values. Actors currently showing very high or very low priorities on openness are 24% (log odds ratio = -0.273, odds ratio = 0.761) more likely to adjust their value priorities towards moderation or keeping their current status, instead of diverging to more extreme value priorities. However, the data does not provide sufficient evidence to support Hypothesis 2b. Actors neither increase their priorities on openness values, if most friends are satisfied with life, nor if most of them are male or female. However, we find support for Hypothesis 2c, as actors are 9 times (log odds ratio = 2.293, odds ratio = 9.904) more likely to adapt their value priorities towards the average priorities of their friends, instead of diverging or keeping their priorities.

The data provide enough evidence to partially support Hypothesis 3. Apparently, friendships are more likely to be formed if peers have the same gender. However, at the stage, where existing friendships are maintained, gender is bereft of all salience. If actors want to make their own decisions on the structure of their ideal value system, a more pronounced tendency for homophily based on openness values is revealed. Log odds ratios between 0.425 and 0.300 and odds ratios between 0.530 and 0.350 indicate that friendships between actors, who are similar on openness values, are 53% more likely to emerge and persist if they are resistant to the exposure of their friends' expressions of value priorities. In contrast, actors are only 35% more likely be friends with similar others if they are assumed to be susceptible to the exposure of their friends' expressions of value priorities. Value priorities are considered for friendship selection, but actors do not distinguish between the stages of friendship initiation or friendship maturity, but instead give value priorities the same consideration across both stages of friendship network evolution.

We could find enough evidence in our data to partially support Hypothesis 4 for openness values. First, odds ratios reveal that actors are approximately 50% more likely to create friendships to same sex peers than to let the opportunity pass. Second, although girls are more likely to shift their priorities on openness values upwards than boys, actors do not subsume information regarding their peers' openness values in gender stereotypes. In line with our expectations, the results suggest that there are increasing marginal returns to similarity on openness values in terms of the utility of a corresponding friendship. Having preselected their friends based on gender, actors are more likely to sever ties to dissimilar friends and maintain relationships with similar friends.

2.4.3 Self enhancement

The results provide no support for Hypothesis 1, as actors with a higher life satisfaction do not show more emphasis on self enhancement values.

However, the data provide support for Hypothesis 2a on self enhancement values. Actors currently showing very high or very low emphasis on openness are 16% more likely to adjust their value priorities towards the center of the scale, instead of diverging to more extreme value priorities. The data also yields enough evidence to partially support Hypothesis 2b. On the one hand, actors who live in a social environment, which is dominated by male friends, are more likely to increase their emphasis on self enhancement, compared to holding their current level or decreasing it. On the other hand, contrary to our expectations, actors don't seem to shift their priorities on self enhancement values, if the majority of their friends are satisfied with their lives. Hypothesis 2c is confirmed as actors are 7 times more likely to adapt their value priorities towards the average of their friends, instead of diverging or keeping their priorities.

Furthermore, we could find enough evidence in our data to partially support Hypothesis 3. Apparently, friendships are more likely to be formed if peers have the same gender. However, at the maturity stage of friendship evolution, gender is less salient. While peers are 28% more likely to be friends if they prioritize self enhancement to similar degrees, there is evidence suggesting that actors consider similarity in their priorities on wealth, achievement and power only when distinguishing between friends with whom they want to maintain friendships as opposed to dissolving their relationship. Having similar self enhancement values is making existing friendships 141% more likely to be maintained.

The log odds ratio for gender homophily is estimated at 1.48, which indicates that actors are approximately 50% more likely to create friendships to same sex peers than to miss the opportunity. Interestingly, although this tendency is more pronounced during the friendship initiation phase, the gender of peers is also considered for decisions whether to maintain or dissolve existing friendships. However, the results do not confirm Hypothesis 4 for self enhancement values. Thus, it appears that the emphasis actors place on these values is part of the stereotypes assigned to the genders. Value expressions indicating smilarity on self enhancement values are ignored, because boys are believed to be socialized into having higher priorities on self enhancement values than girls.

2.4.4 Conservation

The results do not support Hypothesis 1. Actors with a higher life satisfaction do not place more emphasis on conservation values.

Hypothesis 2a is confirmed, as actors currently showing very high or very low emphasis on conservation are 12% more likely to adjust their value priorities towards the center of the scale or to keep their current status, instead of diverging to more extreme value priorities. The data does not provide enough support for Hypothesis 2b to be confirmed. First, actors do not adjust their value priorities if most of their

Table 2.4: **Self enhancement values (sev) and friendship networks**

Hypotheses	*Effects*	*Functions*	**value susceptibility** μ_θ σ_θ	fisher's p fisher's [l,r] p	**value resistance** μ_θ σ_θ	fisher's p fisher's [l,r] p	**phase transition** μ_θ σ_θ	fisher's p fisher's [l,r] p	*Appendix*
	gender based selection:								
H3	**same gender**	**endow**					0.393 0.166	* [0.887 , 0]	
H3	**same gender**	**create**					0.458 0.137	*** [0.986 , 0]	
H4	**same gender**	**eval**	0.373 0.056	*** [1 , 0]	0.364 0.058	*** [1 , 0]			Table 6.8
H4	self-enhancement similarity	eval	0.187 0.232	 [0.967 , 0.349]	0.214 0.258	 [0.991 , 0.331]			
H4	I(gender*self-enhancement)	eval	-0.135 0.305	 [0.27 , 0.781]	-0.148 0.336	 [0.296 , 0.866]			
	satisfaction based selection:								
H3	satisfaction similarity	endow					0.220 0.258	 [0.78 , 0.08]	
H3	satisfaction similarity	create					0.070 0.200	 [0.388 , 0.434]	
H4	**satisfaction similarity**	**eval**	0.204 0.072	*** [0.997 , 0.022]	0.169 0.071	* [0.985 , 0.05]			Table 6.12
H4	**self-enhancement similarity**	**eval**	0.337 0.162	* [0.985 , 0.121]	0.220 0.167	 [0.96 , 0.227]			
H4	I(satisfaction*self-enhancement)	eval	-0.337 0.655	 [0.707 , 0.896]	0.031 0.678	 [0.852 , 0.76]			
	value based selection:								
	self-enhancement alter	**endow**					-0.141 0.073	† [0.037 , 0.959]	
	self-enhancement ego	endow					-0.282 0.461	 [0.012 , 0.088]	
H3	**self-enhancement similarity**	**endow**					0.883 0.501	† [0.961 , 0.181]	
	self-enhancement alter	create					0.007 0.055	 [0.63 , 0.796]	
	self-enhancement ego	create					0.402 0.452	 [0.13 , 0.004]	
H3	self-enhancement similarity	create					-0.133 0.475	 [0.52 , 0.862]	Table 6.4
	self-enhancement alter	**eval**	-0.034 0.022	 [0.026 , 0.947]	-0.048 0.027	† [0.016 , 0.969]			
	self-enhancement ego	eval	0.023 0.023	 [0.541 , 0.041]	0.030 0.027	 [0.753 , 0.036]			
H3	**self-enhancement similarity**	**eval**	0.243 0.133	. [0.981 , 0.044]	0.202 0.156	 [0.941 , 0.087]			
	self-enhancement change:								
	linear	**eval**	0.072 0.028	* [1 , 0.005]	0.105 0.032	*** [1 , 0.001]	0.088 0.035	* [0.999 , 0.006]	
H2a	**quadratic**	**eval**			-0.179 0.022	*** [0 , 1]			
H2c	**average similarity**	**eval**	1.912 0.291	*** [1 , 0]			1.580 0.348	*** [1 , 0]	
	effect from gender	**eval**	-0.126 0.055	* [0.04 , 1]			-0.122 0.069	† [0.039 , 0.996]	Table 6.8
H2b	**average alter gender**	**eval**			-0.301 0.111	** [0.027 , 1]			
H1	effect from satisfaction	eval	0.003 0.016	 [0.54 , 0.749]			-0.025 0.020	 [0.216 , 0.985]	Table 6.12
H2b	average alter satisfaction	eval			0.057 0.069	 [0.994 , 0.792]			
	goodness of fit:		μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	
	GOF (outdegree)		0.328 0.283	*** [63 / 50]	0.329 0.294	*** [60 / 44]	0.294 0.282	*** [46 / 34]	
	GOF (values)		0.670 0.234	*** [63 / 63]	0.695 0.276	*** [60 / 60]	0.681 0.249	*** [46 / 46]	

Fisher's two-sided test: $^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$, $^{\dagger}p < 0.1$

friends are male or female. Second, contrary to our expectations, actors' decision to shift their priorities on conservation values is independent of the degree to which the majority of their friends are satisfied with their lives. Instead, the results confirm Hypothesis 2c, as actors are 12 times more likely to adapt their value priorities towards the average of their friends, than diverging or keeping their current priorities.

Furthermore, the data provide enough evidence to fully support Hypothesis 3. Friendships are more likely to be initiated if peers have the same gender. However, at the stage, where existing friendships are maintained, the importance of gender diminishes. While peers are 32% more likely to be friends if they prioritize conservation to similar degrees, there is evidence suggesting that actors consider similarity in their priorities on conformity, security and tradition only when making decisions regarding the maintenance or dissolution of relationships with friends. Existing friendships are 182% more likely to be maintained, if actors have similar conservation values.

The estimation of the log odds ratio for gender homophily is 1.5, which indicates that actors are approximately 50% more likely to create friendships to same sex peers than to miss an opportunity to do so. According to our expectations, we found no evidence showing that male- and female actors are placing different weights on conservation values. However, in contrast to our expectations from Hypothesis 4, the results reveal that relationships between same sex friends are less likely to be maintained if they are additionally emphasizing health, security, conformity and tradition to a similar extent. Therefore,

Table 2.5: **Conservation values (cov) and friendship networks**

Hypotheses	*Effects*	*Functions*	**value susceptibility** μ_θ / σ_θ	fisher's p / fisher's [l,r] p	**value resistance** μ_θ / σ_θ	fisher's p / fisher's [l,r] p	**phase transition** μ_θ / σ_θ	fisher's p / fisher's [l,r] p	*Appendix*
	gender based selection:								
H3	**same gender**	**endow**					0.435 0.179	* [0.949 , 0]	
H3	**same gender**	**create**					0.487 0.136	*** [0.991 , 0]	
H4	**same gender**	**eval**	0.345 0.044	*** [1 , 0]	0.387 0.062	*** [1 , 0]			Table 6.7
H4	conservation similarity	eval	0.490 0.316	 [0.929 , 0.371]	0.448 0.353	 [0.845 , 0.606]			
H4	**I(gender*conservation)**	**eval**	-0.743 0.401	† [0.177 , 0.948]	-0.618 0.449	 [0.383 , 0.866]			
	satisfaction based selection:								
H3	**satisfaction similarity**	**endow**					0.559 0.247	* [0.997 , 0.023]	
H3	satisfaction similarity	create					-0.151 0.224	 [0.299 , 0.726]	
H4	**satisfaction similarity**	**eval**	0.219 0.086	* [0.997 , 0.051]	0.306 0.098	*** [0.998 , 0.02]			Table 6.11
H4	conservation similarity	eval	0.022 0.224	 [0.852 , 0.705]	-0.036 0.272	 [0.737 , 0.733]			
H4	I(satisfaction*conservation)	eval	-0.195 0.866	 [0.761 , 0.633]	-0.731 1.047	 [0.489 , 0.871]			
	value based selection:								
	conservation alter	endow					-0.103 0.073	 [0.486 , 0.763]	
	conservation ego	endow					-0.178 0.495	 [0.18 , 0.48]	
H3	**conservation similarity**	**endow**					1.037 0.609	† [0.986 , 0.2]	
	conservation alter	create					0.039 0.065	 [0.547 , 0.833]	
	conservation ego	create					0.372 0.449	 [0.622 , 0.081]	
H3	conservation similarity	create					-0.598 0.559	 [0.385 , 0.937]	Table 6.3
	conservation alter	**eval**	-0.052 0.026	† [0.036 , 0.986]	-0.030 0.030	 [0.179 , 0.903]			
	conservation ego	eval	0.042 0.035	 [0.644 , 0.011]	0.039 0.041	 [0.62 , 0.029]			
H3	conservation similarity	eval	0.158 0.178	 [0.845 , 0.468]	0.179 0.209	 [0.819 , 0.423]			
	conservation change:								
	linear	**eval**	0.133 0.029	*** [1 , 0]	0.156 0.032	*** [1 , 0]	0.111 0.037	*** [1 , 0.014]	
H2a	**quadratic**	**eval**			-0.242 0.024	*** [0 , 1]			
H2c	**average similarity**	**eval**	2.946 0.312	*** [1 , 0]			3.101 0.408	*** [1 , 0]	
	effect from gender	eval	0.084 0.057	 [0.917 , 0.18]			0.119 0.075	 [0.978 , 0.148]	Table 6.7
H2b	average alter gender	eval			-0.024 0.107	 [0.487 , 0.654]			
H1	effect from satisfaction	eval	0.009 0.018	 [0.84 , 0.403]			0.026 0.024	 [0.901 , 0.327]	Table 6.11
H2b	average alter satisfaction	eval			-0.040 0.083	 [0.779 , 0]			
	goodness of fit:		μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	
	GOF (outdegree)		0.351 0.299	*** [57 / 44]	0.342 0.305	*** [54 / 41]	0.354 0.309	*** [40 / 29]	
	GOF (values)		0.653 0.256	*** [57 / 56]	0.668 0.316	*** [54 / 52]	0.642 0.260	*** [40 / 40]	

Fisher's two-sided test: $^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$, $^{\dagger}p < 0.1$

the results indicate diminishing marginal returns to similarity on conservation values. Having preselected their friends based on gender, actors are more likely to sever ties to similar friends and maintain relationships with dissimilar friends.

2.5 Discussion

Scholars agree that values not only have the potential to profoundly impact people's choice of social networks but also in particular the selection of affiliations with people inside the social networks of their choice. They also agree that values not only guide people's behavior directly, but also through norms if aggregated in social networks. Scholars have produced a multitude of value frameworks to demonstrate their cross-cultural universality and to create links to many sociologically relevant attributes. However, values have not yet been investigated in the dymanic context of social networks. Our results provide insights on how adolescents adapt value priorities and how value change is expressed in life satisfaction. We show that some forms of homophily are more salient for friendship initiation, whereas other forms become relevant for friendship maintenance. We also find evidence that priorities on some values are subsumed in gender stereotypes, while similarity on others can either strengthen the tendency to maintain ties to friends, who are similar on other attributes, or trigger the tendency to dissolve such ties.

2.5.1 How do people adapt value priorities?

Values are multidimensional and context independent. Adolescents who want to form opinions independently can show similar engagement for equal opportunities in their societies. Those who show concern for the welfare of others in general can also strive for harmony in their own friendship circles. Emphasizing security or autonomy are not only congruent with the desire to attain power or social status, adolescents are also likely to pursue those goals in many different contexts.

Finding a negative interaction between adolescents' current emphasis on values and the way they change their priorities, shows that their value dimensions are not independent. Teenagers currently highly emphasizing one value dimension are aware that further increasing their priority could counteract their desire to pursue values on other dimensions. Investigating the co-evolution of value dimensions, shows that an increase in priorities on self transcendence values is associated with a decrease in priorities on self enhancement values. This finding is in line with the theory of basic human values, which expects conflicts between the goals underlying self transcendence and self enhancement. Similarly, the theory expects congruence between the goals underlying self transcendence and openness, for which our findings provide additional support. However, in contrast to the theory's expectations, our findings suggest that the goals underlying conservation values are independent.

[Bardi and Schwartz, 2003] argue that value systems are intrapsychic cognitive structures. Changes in value priorities can occur regardless of whether teenagers are aware of them or not. However, expressing those values through behavior or communication might be driven by social norms. According to our findings, teenagers are highly susceptible to interpersonal influence regarding their value priorities. This implies that the social norms induced by adolescents' friendship networks are not only affecting the way they express their values publicly, but also have an impact on how they change their value priorities privately. Finding similar susceptibility to interpersonal influence on all value dimensions gives additional credence to the proposition that priorities on different values are not independent, but have to be negotiated. This finding is also highly indicative for adolescents' preference to rely on the wisdom of crowds to find their ideal value structure. It seems teenagers are aware that if they adopt the value priorities of their friends on one dimension, they can avoid conflicts by doing the same on other dimensions, because their friends are subject to the same constraints imposed by the interdependence between value dimensions.

Our findings also leave some room for the possibility that adolescents have a preference to find their own ideal value structure according to the perceived gender stereotype dominating their friendship circles. The supposed conflict with other findings regarding value change may be resolved by acknowledging the profound tendency for gender homophily, which is apparent in the context of our study. If teenagers self-select into a social enviornment, where most of their friends have the same gender, their conformity to gender stereotypes may also be explained by their susceptibility to interpersonal influence.

2.5.2 What are the consequences of value change?

The chain of effects linking value change with life satisfaction has two paths, depending on teenagers' current status of goal achievement. On the first path, adolescents have already achieved their goals. Whereas goal achievement can trigger the pursuit of values representing growth needs, it is also reflected in higher life satisfaction. On the second path, adolescents are struggling with goal achievement, which can trigger the pursuit of values representing deficiency needs, and result in lower life satisfaction [Bilsky and Schwartz, 1994]. Our findings lend support to the first path. Teenagers who increase their value priorities on self transcendence and openness values are likely to be more satisfied with their lives. But why couldn't we find any support for value change along the second path? The framework of [Bilsky and Schwartz, 1994] assumes a circular structure for higher order values as a result of the conflicts and congruence in their underlying goals. If a change in priorities on conservation values was reinforced by a change in self enhancement values or suppressed by a change in openness values, the pursuit of values representing deficiency needs should result in lower life satisfaction. However, the absence of goal congruence for values representing deficiency needs and the lack of goal conflicts between openness and conservation values might explain our findings that the pursuit of values representing deficiency needs is not reflected in lower life satisfaction.

2.5.3 Which distinctive forms of homophily are present across the stages of friendship network evolution?

At an early stage of the friendship network evolution, teenagers know little about their peers, so they heavily rely on gender - and their associated stereotypes - to form new friendships [Eder and Hallinan, 1978]. The meta analysis comparing gender homophily across classes reveals that for the majority, this tendency is more relevant for friendship initiation. The bars in the first panel of Figure 2.2 represent the number of school classes, for which the θ parameter on the gender homophily effect is estimated at a specific level, as indicated on the x-axis. Comparing the cumulative density of θ estimates in the friendship creation with those in the friendship maintenance phase, suggests that overall, the probability for friendships to emerge between same-sex peers is higher than the probability for such friendships to persist.

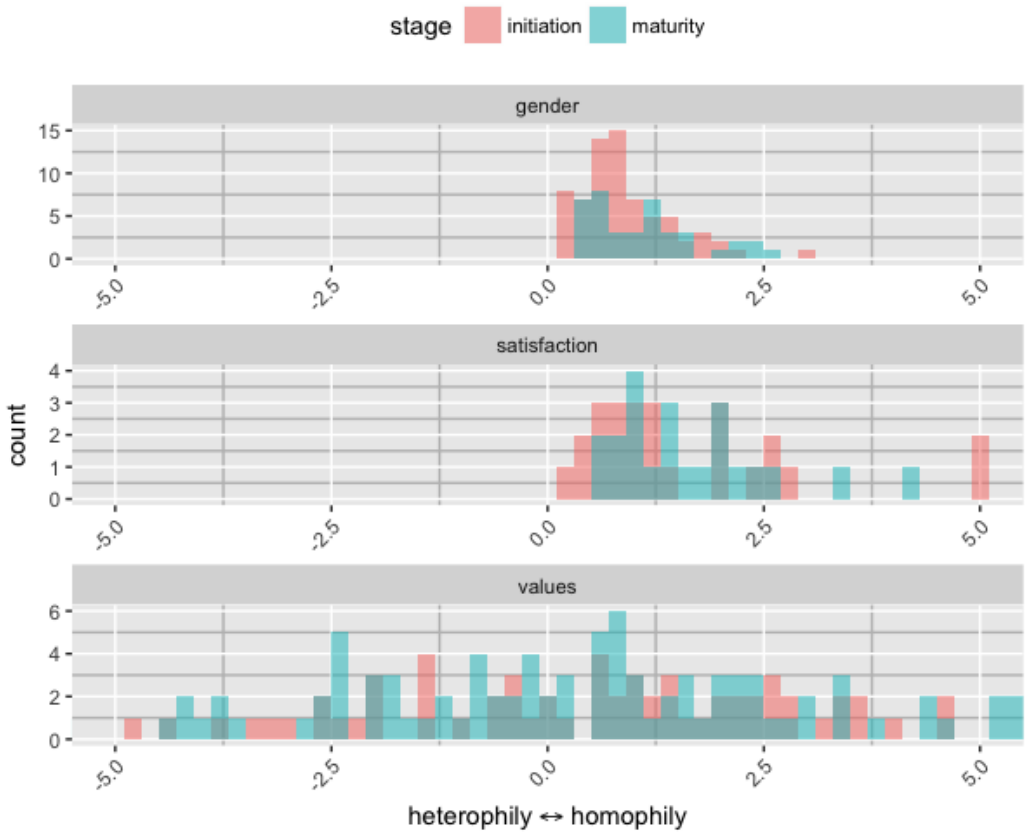

Figure 2.2: *Different forms of homophily across the stages of friendship network evolution*

However, at a more mature stage, friendship relationships have already been formed. The more time teenagers spend with their friends, the more likely they are to know whether their friends are satisfied with their lives. We find that adolescents generally consider similarity to their peers' life satisfaction. However, the meta analysis estimating this tendency for all classes, suggests that satisfaction is significantly more salient to decide whether to maintain or dissolve existing friendships. Bars in the second panel of Figure 2.2 are counts of school classes, for which the estimate of the θ parameter for the life satisfaction homophily effect falls on a specific level of the x-axis. The ratio of the cumulative density of θ estimates in the initiation- compared to those in the maturity phase, imply that overall, the probability for friendships to emerge between similarly satisfied peers is lower than the probability for such friendships to persist.

At this stage, adolescents are also likely to have learned, what is important to their friends. In line with our expectations, the findings from meta-analyses across all classes imply that overall, homophily on conservation and self enhancement is more salient for friendship maintenance. However, contrary to our expectations, homophily on openness is similarly shown in either stage of the friendship network evolution [Kandel, 1978, Lazarsfeld et al., 1954, Newcomb, 1961]. The school classes aggregated in the bars of the third panel of Figure 2.2 are those, for which the estimates of the θ parameters for the value homophily effects take on a specific level on the x-axis. Comparing the cumulative density of

θ estimates in the initiation- compared to those in the maturity phase, reveals that in the aggregate, the probability for friendships to persist among peers with similar values is higher than the probability for such friendships to emerge. Surprisingly, there is considerable heterogeneity in the likelihood for friendships to emerge or persist based on the similarity in value priorities of peers.

Based on the interdependencies in the structure of values, the development of priorities on openness values is a reflection of the priority evolution regarding self transcendence values. Therefore, our findings do not exclude the possibility that teenagers also consider homophily on self transcendence in the evolution of friendship, because they believe these values to be reflected in openness values. As a result, similarity in priorities on values representing growth needs is equally relevant for both initiation and maintenance of friendships, while similarity in priorities on values representing deficiency needs are only salient for friendship maintenance. Teenagers, who have not yet achieved their goals, seem to be reluctant to spend cognitive resources on the evaluation of value similarity for friendship initiation. Instead, they rely on gender stereotypes, because their cognitive resources are preoccupied to cope with their own problems.

2.5.4 Does value homophily interact with other forms of homophily?

At the maturity stage of friendship network evolution, adolescents may realize that they have more in common with some of their friends than with others. At this stage, teenagers are more likely to maintain ties to friends who have similar priorities on openness values, given that they have been preselected based on gender. However, this tendency is only shown if they primarily consider their own current value priorities for value adaption, but also move closer to the perceived gender stereotype dominating their friendship circles [Block and Grund, 2014]. As a result, the chance to remain friends is reinforced by similarity on multiple dimensions. But why do adolescents need to dissolve ties to friends who emphasize openness differently, if they have already adapted their priorities to the corresponding gender stereotype? One possibility is that their friends do not express openness in ways that are consistent with their perceived gender stereotype. As a consequence, they can derive additional utility by keeping ties to friends with similar openness values. Furthermore, dissimilarity in value priorities is instrumental in providing access to new ideas, knowledge or opportunities for validation. For teenagers in pursuit of growth related values, the need for social validation is not immediate. Thus, having friends with dissimilar value priorities does not provide superior utility for them.

Moreover, having preselected their friends based on gender, adolescents show an equally pronounced likelihood to dissolve ties to friends, who place similar emphasis on conservation values. This tendency is only revealed however, if they are not subject to the influence from the perceived gender stereotype dominating their friendship circle, but instead exclusively consider their friends' value priorities to adapt their own. As a result, similarity on conservation values tempers the likelihood to remain friends in connection with other dimensions [Block and Grund, 2014]. But why do adolescents move closer to their friends' value priorities, only to dissolve ties to friends that are too similar on conservation values? Counter-intuitively, although friendship structures are neither complete nor stable, it seems that through the dissolution of ties to similar others, the average- as well as the spread of their friends' value priorities are kept relatively stable. As a consequence, network dynamics appear to facilitate the maintenance of a wide range of value priorities. Since dissimilarity in value priorities creates opportunities for social validation, the corresponding friends are valuable benchmarks, if teenagers prioritize values representing deficiency needs such as conservation.

Surprisingly, similarity on self transcendence- or self enhancement values does not make friendships more or less likely to be maintained, given that they have been preselected based on their gender. Instead, adolescents seem to rely on gender stereotypes regarding benevolence, universalism, achievement or power values for friendship maintenance. In line with the framework in [Schwartz and Rubel, 2005], our findings confirm that females are socialized more positively to pursue benevolence values, such as attending to the needs of others [Cieciuch et al., 2013, Markus and Oyserman, 1989]. Our findings provide further support for the framework in [Schwartz and Rubel, 2005], as societies seem to sanction females more positively to endorse conformity as opposed to forceful or assertive action, for which males are facing less severe consequences. Thus, value priorities on self transcendence or self enhancement are submerged in adolescents' perceived gender stereotypes, which implies that similarity does not matter, since teenagers assume peers of the same gender to be similar regarding self transcendence or self enhancement.

2.5.5 Are there differences across countries?

According to [Schwartz, 1999], values are the vocabulary of socially approved goals used to motivate behavior, or to express and justify decisions. There are no differences in how teenagers adapt value priorities across countries. Both Swiss and Polish pupils consider their own current value priorities and similarly rely on the wisdom of crowds to find their ideal value structure. Gender differences are more pronounced in Switzerland, which might be a reflection of a higher conformity to gender stereotypes.

Our findings suggest that there are different paths how teenagers in both countries find life satisfaction. Swiss pupils are more satisfied if they increase their priority on openness values, while the path for Polish pupils to reach this state is characterized by an increase in their priorities on self transcendence values.

Across countries, some attributes are emphasized differently along the stages of friendship network evolution. For Swiss pupils, the importance of gender homophily in friendship creation is shifted to satisfaction- and value homophily for friendship maintenance. In contrast, the confidence of Polish pupils to interpret signs indicating the life satisfaction of their peers is high enough to initiate friendships, even if they have not spent much time with them. However, when reaching maturity, relationships between friends of the same gender are more likely to persist.

According to our findings, there are distinctive ways how different types of homophily interact in the multidimensional space of attributes across countries. Both Swiss- and Polish pupils appear to consider self enhancement- and self transcendence values to be part of gender stereotypes. Consequently, being similar on the corresponding value dimensions does not provide any marginal benefits on top of having the same gender. Positive marginal returns on value similarity are realized by Swiss pupils, if they find out that their friends' priorities on openness values are similar to theirs. In contrast, Polish pupils seem to experience negative marginal returns on similarity in conservation values.

2.6 Limitations

Although the data structure is hierarchically structured with classes nested in schools, this paper assumes identical utility functions for all classes. However, classes might be heterogenous regarding the composition of their utility functions, which could be captured by adding restrictions projecting unique utility functions accounting for the hierarchical data structure.

For the sake of simplicity, we primarily investigate higher order values as orthogonal dimensions. However, following our discussion, being exposed to behavioral expressions of specific values from peers might not necessarily make people adjust their values on the same dimension. Instead, their reactions might also be visible in value changes on other dimensions. Although we scratched the surface by investigating the co-evolution of higher order values, further research is needed to understand the complex interdependencies between value dimensions. For the sake of parsimony, indiviudal values are aggregated to higher order values in this paper. However, the effects we identified for each higher order value might be driven by subsets of specific values on the corresponding dimensions.

Furthermore, our meta-analysis investigating the tendency for value homophily indicated considerable heterogeneity across classes. Further research is needed to investigate the capacity of macro-level properties in social systems to explain the heterogeneity in value homophily on the micro-level. Random coefficient multi-level analyses would allow parameters to vary across classes, and thus capture unobserved heterogeneity.

Finally, following our discussion on cultural differences, further research is needed to cross-validate our findings in other countries. Insights from studies in other countries could provide substantial contributions on the road to a more comprehensive picture by filling the gaps in the multi-dimensional value space on the cultural level.

2.7 Conclusions

We conclude that future research should not only investigate the multidimensionality of higher order values in more detail but also the change in individual values making up the higher order values. Further research should also account for the hierarchical structure of classes embedded in schools, as well as the heterogeneity in people's tendencies for value change and homophily. Moreover, further research is needed to investigate inhowfar the distinctive forms of value change and homophily are present in different types of social systems such as networks of advice- or trust relationships.

Chapter 3

Financial Decision-Making in Adolescent Friendship Networks

Abstract

In many societies, adolescents are socialized to become consumers. Teenagers are a key market segment, and firms devote considerable effort to tailor their marketing activities to this target audience. Thus, the question is not if adolescents need to learn responsible management of their financial resources, but whether they should be taught or socialized accordingly. The status attributed to parents in socialization has been studied intensively in previous research. Surprisingly, the roles of socialization agents in the school environment have received little attention. This article introduces a framework focused on the evolution of financial decision making in the context of school classes. Drawing on stochastic actor-oriented network models, 73 adolescent friendship networks are analyzed. First, our framework identifies various motivational goals underlying practices of spending-, giving- or saving money. Second, our findings provide evidence that social norms for spending and saving money are highly effective, while norms regarding donations have no effect. Third, our findings suggest that self-control, cognitive abilities and time preferences are contributing to the self efficacy for teenagers to divert money from spending to savings and that failure to do so can increase their resilience for future trials. Implications for micro-level behavior and macro-structural properties are discussed.

Keywords: Financial resource allocations, social norms, adolescent networks, stochastic actor-oriented network models

Publication note: This article is a work in progress. A version of this article will be submitted to the Journal of Marketing Research. Co-authors of this article are Alexander Ehlert, Jan Cieciuch, Eldad Davidov, Heiko Rauhut, Claudio Juan Tessone and Rene Algesheimer.

3.1 Introduction

Teaching children and adolescents responsible ways to manage financial resources is extremely important. Having reached 159 billion USD in 2005, teenage markets are a key demographic in terms of both size and spending volumes. In the United States alone, this segment comprises approximately 32 million people [Breazeale and Lueg, 2011]. As firms are tailoring their marketing activities to teenage markets, temptations for adolescents to spend their money are both continuous and ubiquitous. Among all contributing domains, online shopping [Hill and Beatty, 2011] and -gaming [Grüsser et al., 2006] should be highlighted, as they both harbour the potential for addictive consumption patters and are rapidly growing phenomena among teenagers.

Buying commodities online is a mystifying experience. In virtual store windows, clothes appear to fit perfectly and look amazing, especially with the right shoes to go with them. Having found the objects of their desire, teenagers on a shopping spree are shown even more objects under "You might also like this" or "Discover new fashion trends". The experience is so bewildering that they don't know whether the objects have only been bookmarked, put in the shopping cart or whether they have just been bought. Online shopping is highly addictive, and adolescents can be very creative, when they realize that their accounts have been blocked [Youn, 2005].

Online gaming is another experience with an extremely large potential for addiction. Adolescents' desire to outperform their competition in online games is consuming a significant proportion of their recreation time. In extreme forms of addiction, it can drive teenagers to neglect sleep and even preoccupy their attention at school. Moreover, in the virtual reality of online games, victory is not for free. For hard currencies, adolescents can buy stronger weapons, new lives and a staggering amount of accessories for their characters. The gaming industry is flooding markets with games. Using captive pricing strategies, games can be downloaded for free, but instead, users are charged for extras. Loss of control over their expenditures is a critical signal for addiction and not uncommon among teenagers, given that computer gaming disorder is classified as a disease by the World Health Organization [Grüsser et al., 2006].

Consequently, the question is not if children need to be taught how to manage their financial resources responsibly, but how they can effectively acquire the corresponding knowledge and skills. According to [Kim and Chatterjee, 2013, Bucciol and Veronesi, 2014] and [Anderson and Nevitte, 2006], current research is debating about whether children can effectively learn financial resource management through the curriculum at school.

[Mandell and Klein, 2009, Hayhoe et al., 2000] find that through financial literacy education, adolescents can acquire a satisfactory level of competence and efficacy for subsequent financial decision making in adulthood. However, [Willis, 2008] argue that financial literacy education may also have detrimental effects, such as instilling confidence in financial decision making without providing the necessary skills.

[Moschis, 1985, Olshavsky and Granbois, 1979] argue that depending on the type of communication, parents can exert a sustainable influence on adolescents' priorities in financial decision making throughout the socialization process. On the one hand, consensual families encourage their teenagers to become self sufficient, look for jobs [Olshavsky and Granbois, 1979], and take an interest in new ideas on budgeting without disturbing the family's hierarchical harmony. Open communication, mutual respect and interests are also encouraged in pluralistic families, who are discussing budgeting ideas without insisting on obedience to authority [McLeod and O'Keefe, 1972]. On the other hand, protective families, emphasizing social harmony and obedience, or laissez-faire families, who do not stress communication, do not provide sufficient encouragement for children to learn responsible ways of managing financial resources. Apart from its conditional effectiveness, the perspective of socializing responsible management of financial resources has also received criticism through its potential to divert teenager's attention from curricular activities such as homework [Bucciol and Veronesi, 2014].

The perspective of selective attachment towards parents and peers in adolescence [Greenberg et al., 1983] suggest that the relative influence adolescents are subject to from both parents and peers is situation dependent. Parents are the consultants of choice for adolescents in important situations involving values and future decision making [Musgrove, 1963, Smith, 1976, Won et al., 1969]. However, when they perceive their parents to be indifferent or rejecting, adolescents are more likely to choose peers as their reference group [Bowerman and Kinch, 1958, Iacovetta, 1975, Larson, 1972a, Larson, 1972b, Smith, 1976]. Surprisingly, existing literature is remarkably thin on the respective roles of socialization agents in the school environment - such as teachers or peers.

We investigate the role of peers in pupils socialization of financial decision making. First, we study the impact of values [Schwartz, 1992] as guiding principles, motivating specific changes in financial decision making that lead to desirable outcomes. Second, we investigate the emergence and effectiveness of

corresponding norms [Cialdini and Trost, 1998] in the context of social networks. Third, we investigate the impact of specific abilities on the self efficacy [Bandura, 1977] to realize corresponding changes in financial resource allocations in this context. In so doing, we introduce the theory of basic human values to the marketing discipline and interlink the corresponding motivational constructs with the theory of self efficacy.

The paper is structured in the following way: We will begin with our theoretical framework and hypotheses, followed by a description of our data and variables in the model. Next we will present the results, and finalize with concluding remarks.

3.2 Theoretical Framework

When adolescents make decisions on whether and how much to change their financial decision making practices, their own past experiences are not the only source of information. They are constantly exposed to information about how peers behave in their social systems, how they solve problems and how they are affiliated to each other.

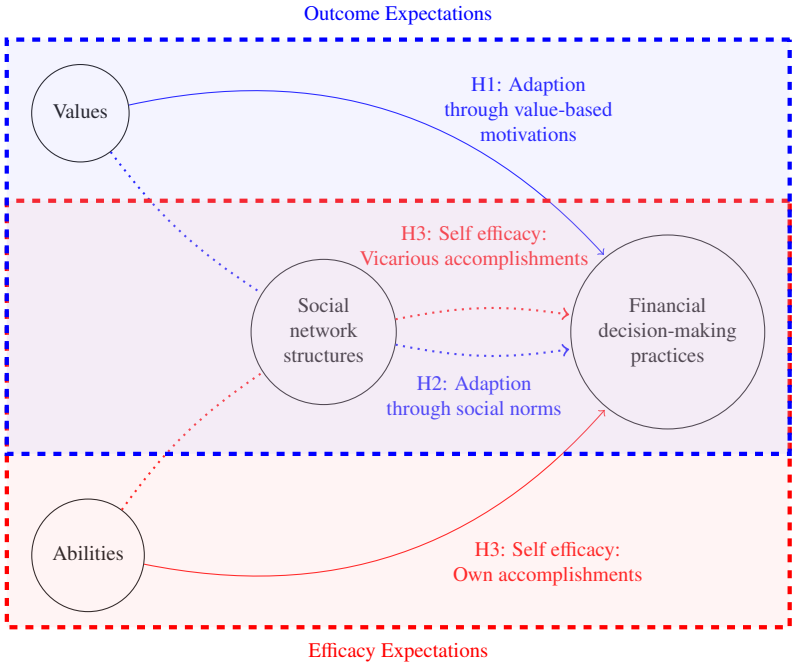

Figure 3.1: *Theoretical framework and hypotheses. Adapted from the theory of self efficacy [Bandura, 1977]*

Self efficacy theory [Farrell et al., 2016, Lim et al., 2014, Danes and Haberman, 2007, Bandura, 1977] is the nexus of our theoretical framework. The theory proposes that teenagers' decisions to change particular behavioral patterns depend on expectations regarding the corresponding effectiveness in realizing desirable outcomes (outcome expectations), and expectations regarding the likelihood of successful realization of the corresponding changes in behavioral patterns (efficacy expectations). Processing feedback from sequences of events over long time intervals, teenagers are synthesizing information about situational circumstances, in order to form expectations about specific practices and corresponding levels of behavioral patterns that are necessary to produce desirable outcomes.

Outcome expectations are formed in two processes, the components of which are elaborated in more detail in the following paragraphs, and illustrated in the upper panel of Figure 3.1. First, adolescents want to avoid dissonance, emerging through discrepancies between their behaviors and self-concepts, but instead strive to maintain consistency or enhance themselves to approach their ideal self-concepts [Sirgy, 1982]. In their quest to find and validate their ideal self-concepts, adolescents might identify peers with desirable lifestyles [Giddens, 1991] and then determine behavioral changes in financial decision making practices that are necessary to achieve such desirable states. Assuming that adolescents are facing budget constraints in financial decision making, behaviroal changes such as these involve trading off consumption

[Solomon, 1983], donations [Sargeant, 1999] and saving [Olshavsky and Granbois, 1979] against each other. Second, based on the need for affiliation, teenagers might yearn for social rewards, which can be attained by adhering to norms and, in so doing avoid social sanctions incurred for non-compliance [Algesheimer et al., 2005, Cialdini and Trost, 1998].

3.2.1 Values and financial decision making practices

In their lifestyles, people integrate a distinct set of social practices, which span their daily lives into a reasonably coherent unity. In structuration theory [Giddens, 1991], lifestyle is defined as a more or less integrated set of practices, which an individual embraces, not only because such practices fulfill utilitarian needs, but because they give material form to a narrative of the self concept. Practices are routinized sets of mental activities and physical performances, enabled and limited through priorities how given resources are used [Reckwitz, 2002]. We conceptualize financial decision making as priorities how resources are to be used, and the corresponding practices as behaviors people can use to express their self concept.

[Taylor, 1989] contends that people's self concept is intrinsically connected to their values, as defined by the way things have significance for them. In a review of value theories and value research, [Rohan, 2000] found that some theorists define values as motivational guides [Lewin et al., 1951], conceptions [Kluckhohn, 1951], or properties of entities [Heider, 1958]. Other theorists define values as beliefs about the desirability of modes of conduct and states of existence [Morris, 1956, Rokeach, 1973]. Prior value research agrees that value systems need an underlying structure based on the motivational goals embodied by each value type and that they contain a finite number of universally relevant values.

Therefore, our framework is based on the theory of basic human values, [Schwartz et al., 2012, Schwartz, 1992, Cieciuch et al., 2016, Skimina et al., 2018]. The theory defines values as trans-situational goals, to which people assign varying degrees of importance, and thus serve as guiding principles for individuals and groups. In this framework, value systems are essentially structured according to three main principles.

First, values are structured according to conflicts, resulting in two motivational dimensions, as illustrated in the top panel of Figure 3.2. The conflict between the motivation to "follow one's own intellectual and emotional interests in unpredictable and uncertain directions" and the motivation to "preserve the status quo and the certainty it provides in relationships with close others, institutions, and traditions" is highlighted by the first dimension labeled as "openness to change - conservation" (p. 43). The second dimension is labeled as "self-enhancement - self-transcendence", and relates to the conflict between people's motivation to "enhance their own personal interests, even at the expense of others" and their motivation to "transcend selfish concerns and promote the welfare of others, close and distant, and of nature" (p.44). If enacted simultaneously, values on opposite sides of these dimensions create conflict, while the pursuit of values adjacent to each other can be negotiated.

Second, value attainment can serve specific interests, as illustrated on the intermediate layer. While values on the right side of the motivational circle in Figure 3.2 predominantly regulate the expression of personal interests, values on the left side mainly regulate the social expression towards others and their interests [Schwartz et al., 2012].

Third, values can be structured according to their relations to anxiety, as shown on the peripheral layer. While growth or self-expansive values on the top part of the motivational circle in Figure 3.2 express anxiety-free motivations, self-protective values on the bottom part serve to cope with uncertainties in the social and physical world [Schwartz et al., 2012]. In the following paragraphs, we provide more detailed descriptions for each basic human value.

Self-transcendence

The group of values underlying self transcendence can be divided into "benevolence" and "universalism" values. Driven by the need for positive social interactions [Schwartz and Bilsky, 1987, Kluckhohn, 1951] and affiliation [Korman, 1974, Maslow, 1959], people emphasizing benevolence exhibit concern for the prosperity of people in their immediate social environment. Thus, they emphasize the preservation and maturation of true friendship, and pro-sociality towards people with whom personal interactions are frequent. As a consequence, people who emphasize benevolence want to be helpful-, loyal-, forgiving-, honest-, reliable and trustworthy friends. People in pursuit of universalism goals strive for understanding, appreciation, tolerance for different groups and cultures. Their pro-sociality extends to include the welfare of all people as well as the protection of nature [Maslow, 1959].

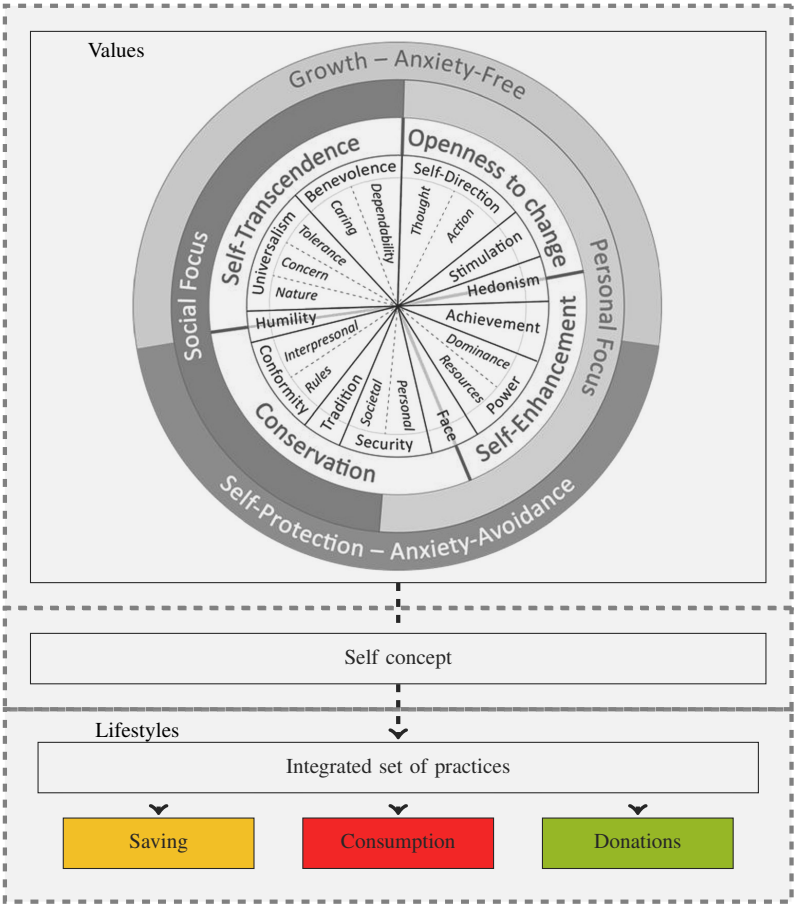

Figure 3.2: *The self concept [Taylor, 1989] as described by the motivational circle of values [Schwartz et al., 2012] and expressed through general- and specific practices of lifestyles [Giddens, 1991]*

Openness to change

The motivational goals underlying openness to change can be aggregated in two groups, specifically "self-direction" and "stimulation" values. Driven by the intrinsic motivation, as described in the theory of self efficacy [Bandura, 1977, Deci and Ryan, 1975, White, 1959], people who emphasize self-direction are creative or curious, and want to discover things on their own. Furthermore, autonomy in choosing their own goals, as well as independence in interpersonal relationships [Kluckhohn, 1951, Kohn and Schooler, 1983, Morris, 1956], are strong requirements for people in pursuit of self-direction. People who emphasize stimulation want to maintain an optimal level of activation through variety seeking [Berlyne, 1960, Houston and Mednick, 1963, Maddi, 1961, Farley, 1986]. Thus, they search for excitement, novelty, and challenge in life [Deci and Ryan, 1975].

Self-enhancement

The group of values underlying self-enhancement are categorized into "achievement" and "power" values. People emphasizing ambition or personal success want to demonstrate competence according to internal- [Deci and Ryan, 1975, McClelland et al., 1953] or social- and cultural standards of excellence in order to obtain resources for survival and social approval [Maslow, 1959, Rokeach, 1973, Scott and Scott, 1965]. The objective for individuals who emphasize power is to attain social status [Durkheim, 1964, Parsons, 1991], prestige, and control or dominance over people and resources [Korman, 1974, Schutz, 1958, Allport, 1961, Gordon, 1960]. Thus, they emphasize authority, wealth, social power, social recognition, or the preservation of their public image. The pursuit of social esteem is common for both power- and achievement values. Whereas the demonstration of competence in social interactions is emphasized by achievement values, power values focus on the attainment or preservation of a dominant position within the social system.

Conservation

The motivational goals underlying conservation can be categorized in three groups of values, specifically "security", "conformity" and "tradition" values. People who emphasize security, are pursuing safety, harmony, and stability on the individual-, the dyadic- as well as the society level, [Kluckhohn, 1951, Maslow, 1959]. Security values can serve collective interests, in which case people place great emphasis on social order, the reciprocation of favors, and family- or national security. However, security values can also serve individual interests, in which case people highly emphasize their sense of belonging. People who prioritize conformity want to facilitate social interactions by restraining socially disruptive behavior, inclinations or impulses, which might upset or harm others or violate social norms [Freud, 1933, Kohn and Schooler, 1983, Parsons, 1991]. Thus, they want to honor parents or elders and place great importance on being obedient, self-disciplined, and polite. Finally, traditions and customs are represented by symbols, religious rites, beliefs, and norms of behavior [Sumner, 1906, Radcliffe-Brown, 1952]. Such norms symbolize a group's solidarity, express its unique positioning, and presumably guarantee its survival [Durkheim, 1964, Parsons, 1991]. Individuals, who prioritize tradition emphasize humility, devotion, moderation, acceptance of their place and role in life, and show respect and commitment for customs imposed by culture or religion.

3.2.2 Social network structures and financial decision making practices

Social networks are at the center of our framework in Figure 3.1. Their structure and dynamics are determined by the underlying type of relationships. In this article, we focus on the dynamics in friendship networks [Bukowski et al., 1994]. But what are the boundaries, which determine the scope up to which adolescents evaluate information about how peers are affiliated with each other, how they behave and how they solve problems? [Feld, 1981] introduced the concept of organizational foci, which are defined as social, psychological, legal, or physical entities around which joint activities are organized (e.g., school classes, workplaces, voluntary organizations, hangouts, families). Such foci represent pools of peers, with whom adolescents are likely to form friendships.

Why are teenagers forming friendships with their peers in order to spend more time with them? Social comparison theory [Festinger, 1954] proposes that people have an inherent need to validate cognitions and behaviors. Thus, if teenagers cannot derive sufficient insights by considering their own financial decision making experiences, they need to reach out to their peers. After initiating friendship relationships with their peers, teenagers are spending more time with them and can thus obtain more comprehensive information about their cognitions and behaviors. Apart from social validation, [Wright, 1984] proposes that friendships encourage and facilitate the expression and recognition of highly valued attributes of adolescents' self-concept, that they stimulate and foster an expansion or elaboration of their knowledge and perspectives, and that they provide security and emotional support [Smith and Rose, 2011].

Are teenagers reciprocating friendship nominations or encouraging their friends to meet and spend more time together? [Krackhardt and Kilduff, 1999, Vaquera and Kao, 2008] and [Freeman, 1992] suggest that people generally expect communal relationship types - such as friendships - to be mutually balanced in terms of social capital [Coleman and Cross, 2000], irrespective of whether or not such reciprocity exists. [Festinger and Hutte, 1954] argue that people experience feelings of uncertainty or instability, if they perceive friendship relationships to be unbalanced. Thus, we expect that teenagers strive to induce balance through the enactment and promotion of reciprocity. But how are such efforts to balance friendship relationships reflected in the global friendship network structures? In spite of teenagers' balancing efforts and their limited capacity and the costs associated with the creation and maintenance of friendships [Amaral et al., 2000], we expect adolescents with a higher number of existing friendships to be more popular, as preferential attachment [Barabási and Albert, 1999] is consistently found as a significant property in many types of networks.

What is the link between social networks and financial decision making practices? If social practices are shared among peers in social networks, they constitute social norms [Reckwitz, 2002, Cialdini and Trost, 1998], which can be enforced or incentivized through adolescents' need for affiliation [McAlister and Pessemier, 1982, Algesheimer et al., 2005] or the threat of social exclusion [Mead et al., 2010].

3.2.3 Abilities and financial decision making practices

Forming expectations regarding desirable outcomes and evaluating which practices are necessary to realize corresponding states is necessary for teenagers to change their behavioral patterns. However, even if they believe that particular practices will produce desirable outcomes, teenagers will not adapt

their behavioral patterns if they entertain serious doubts about whether they can enact the corresponding changes [Xiao and O'Neill, 2016, Loke et al., 2015]. Efficacy expectations are formed in two processes, as illustrated in the lower panel of Figure 3.1.

On the one hand, teenagers can use information from their own accomplishments to form efficacy expectations. We assume that the successful enactment of practices, which are affected by financial decision making priorities, depends on adolescents' abilities. In particular, teenagers' expectations concerning their self efficacy might depend on their capacity for adaptation in the face of social pressures (self-control) [Tangney et al., 2004], cognitive capacity (numeric- and linguistic proficiency, financial literacy), as well as their ability to delay immediate gratification (time preferences) [Lusardi et al., 2010]. Perceived self-efficacy does not only motivate adolescents to initiate changes in certain behavioral patterns, but through the expectations about whether they will eventually succeed, it can affect how much effort they will expend and how long they will persist in the face of obstacles and aversive experiences (resilience) [Campbell-Sills and Stein, 2007].

On the other hand, teenagers might turn to their friends as sources for efficacy expectations. They might draw courage to engage in trials to change behavioral patterns if they are verbally persuaded by their friends. Alternatively, information from achievements vicariously experienced by their friends might also strengthen efficacy expectations, that they can be successful themselves.

3.3 Dynamics in financial decision-making

In light of the fact that most teenagers have limited financial resources, we assume that shifting money allocations in favor of a particular purpose must be compensated by decreases in financial resources previously devoted to other purposes. In the following paragraphs, we will outline the motivations underlying financial decision making practices to the three generic purposes savings, spending and donations, as illustrated in corresponding order on the three layers placed around the motivational goals [Schwartz et al., 2012] at the center of Figure 3.3.

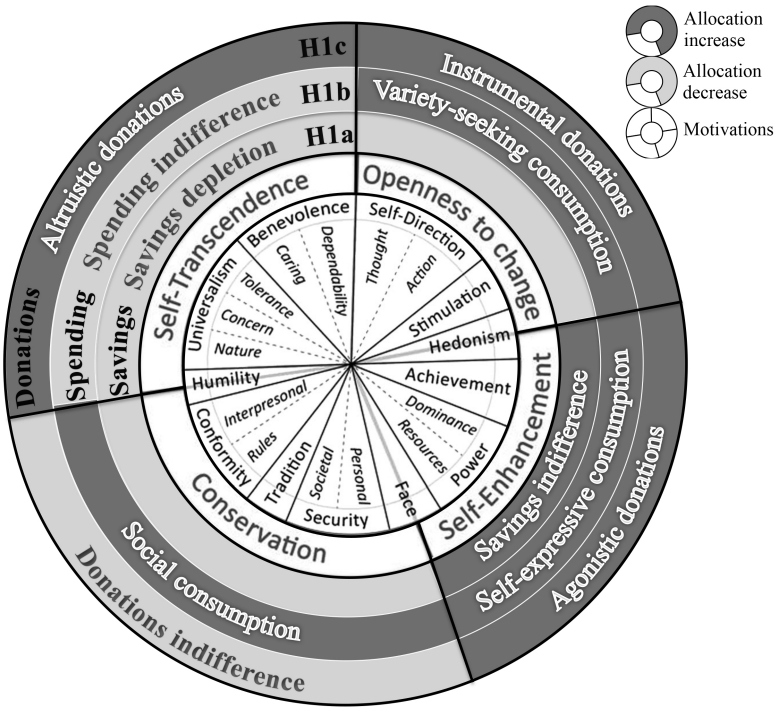

Figure 3.3: *The motivational circle - Typology of financial decision making according to the theory of basic human values [Schwartz et al., 2012]*

3.3.1 Motivations for changes in savings

According to the interest regulation principle [Schwartz et al., 2012], values such as self-direction, stimulation, power and achievement regulate the expression of personal interests, while values such as benev-

olence, universalism, conformity, tradition or security serve to regulate social interests. In contrast to teenagers, who emphasize values with a personal focus, we assume that adolescents in pursuit of values with a social focus are more willing to compensate spending or donations through savings. According to the anxiety relation principle [Schwartz et al., 2012], adolescents in pursuit of growth related values such as universalism, benevolence, self direction and stimulation are likely to have reached their goals. In contrast, realizing that they will not be able to attain their goals, teenagers are likely to pursue achievement and power, or trigger defense mechanisms promoting the pursuit of conformity, security or tradition. We assume that adolescents in pursuit of growth related values are more willing to deplete savings for spending or donations compared to teenagers emphasizing values related to self-protection. Both principles are illustrated in Figure 2.1. With the exception of the conflict between risk preference vs. risk aversion, both perspectives are predominantly consistent regarding their predictions on how allocations of financial resources to savings are motivated by values. In adult populations, people concerned about unpredictable shocks with the potential to cause financial distress are expected to put money aside in order to guarantee financial security. However, in adolescents' minds, this aspect is expected to play a minor role.

Hypothesis 5a (H5a)**.** *Teenagers in pursuit of self transcendence, conservation and openness to change are more likely to deplete savings compared to those emphasizing self enhancement.*

3.3.2 Motivations for changes in spending

Adolescents increasing their financial resource allocations to spending, might be intrinsically motivated to do so through their need for novelty, stimulation [McAlister and Pessemier, 1982, Venkatesan, 1973, Holbrook and Hirschman, 1982], or acquisition of information [Hirschman, 1980]. Alternatively, intrinsic motivations for teenagers to increase money allocations to spending might be triggered through their desire to express individuality [Fromkin and Snyder, 1980], or to elevate their social status [O'cass and McEwen, 2004, O'cass and Frost, 2002].

Some forms of consumption - particularly those driven by motivational goals underlying openness to change and self enhancement - are in line with [Schwartz et al., 2012] suggesting that experiential-, variety-seeking- and conspicuous consumption serve to express values with a personal focus. The person spending financial resources in pursuit of these values is typically the same as the person consuming the corresponding services or assuming possession of the corresponding goods.

However, other forms of consumption - especially if the corresponding goods or services are consumed in public [Ratner and Kahn, 2002], or shared with others [Sherry Jr, 1983] - might also be explained by conservation motivations, such as the need for affiliation [McAlister and Pessemier, 1982, Lee and Shrum, 2012, Mead et al., 2010], or the intrinsic motivation to maintain harmony in social systems [Sherry Jr, 1983]. If money is used to invite friends for social consumption, the benefactor spending financial resources to express such values might not be the sole recipient, but can usually derive more utility from the social consumption experience compared to the alternative of private consumption. If money is used to buy gifts for spouses or friends, the benefactor is typically not the recipient, but can nonetheless derive utility in the form of acquiring new friendships, and maintaining or enriching existing friendships [Sherry Jr, 1983]. Thus, even though motives of benefactors are often prosocial, they can be purely altruistic, which is accentuated if they choose to remain completely anonymous.

Whether benefactors are motivated to spend money based on conservation values or donate financial resources motivated by self-transcendence values depends on recipients' indigence. If recipients accepting a gift or invitation are deriving benefits in the form of a symbolic meaning of the given object or gesture, the corresponding expenditures are classified as social consumption. If recipients are in dire need of help, the financial resources raised by the corresponding benefactor are classified as donations.

Hypothesis 5b (H5b)**.** *Teenagers emphasizing openness, self-enhancement or conservation values are more likely to increase variety-seeking-, self-expressive-, and social consumption, compared to teenagers prioritizing self transcendence values.*

3.3.3 Motivations for changes in charitable donations

Depending on the underlying goals, the motivation for adolescents to entrust their money to charitable organizations can range from altruistic to agonistic [Sherry Jr, 1983]. Realizing that friends are in dire financial straits, benevolent teenagers might feel compelled to help them by allocating money to them. Witnessing undue suffering, teenagers emphasizing universalism values are facing a threat to their belief

in a just world and as a consequence, they may be motivated to restore their faith by increasing their money allocations to charity donations [Miller, 1977]. While teenagers emphasizing self direction might realize the potential of the act of giving to express their individuality, adolescents striving for power and achievement might be motivated to increase donations to elevate their self esteem or status in a social context [Sargeant, 1999, Haggberg, 1992, Sherry Jr, 1983, Schwartz, 1967]. Teenagers in pursuit of conformity or tradition values may be motivated to increase their charitable donations depending on the existence and effectiveness of corresponding social norms or traditions in their communities [Lee and Shrum, 2012]. However, given that a considerable proportion of donors choose to remain anonymous, we do not expect that charitable donations emerge as social normative behaviors. Furthermore, even if charitable behaviors happen to emerge as norms or traditions in certain communities, we do not expect them to be effective in motivating members to adjust their charitable behavior accordingly.

Hypothesis 5c (H5c)**.** *Teenagers in pursuit of self-transcendence, openness and self enhancement values are more likely to increase altruistic-, instrumental and agonistic donations compared to those prioritizing conservation values.*

3.3.4 Social norms as motivations for changes in financial decision making practices

Given their general lack of life experience, adolescents are often confronted with novel- or ambiguous situations [McAlister and Pessemier, 1982]. Thus, they can derive considerable utility from knowing what most other peers in their organizational foci are doing. If they are repeatedly triggered by specific contextual cues, certain behaviors can become preferred responses in the corresponding situations and are thus referred to as descriptive norms [Cialdini and Trost, 1998]. In light of the complex trade-offs associated with changes in money allocation priorities, we expect that teenagers need to validate said priorities in order to understand their social meaning [Festinger, 1954]. Thus, they are expected to subcontract the quest to find their optimal money allocation priorities to the judgment of their friends [Lorenz et al., 2011], particularly if they can assume that their friends are similar to themselves.

Social groups emerging from organizational foci can often utilize effective incentive mechansims such as the need for affiliation [McAlister and Pessemier, 1982] or the threat of social exclusion [Mead et al., 2010]. Particular behaviors, for which social groups emphasize general uniformity are referred to as injunctive norms [Cialdini and Trost, 1998]. Triggered by corresponding situational cues, they can prescribe or proscribe what most other group members approve or disapprove respectively. Their strength depends on opportunities for communication or other means of norm transmission, as well as group cohesion. For the most part, the mere presence of such norms is sufficient to enforce normative behavior [Cialdini and Trost, 1998].

Successful norms are adaptive in promoting survival related behaviors [Schaller and Latané, 1996, Latané, 1981, Latané et al., 1994], without unduely restricting the freedom or self-direction of group members [Algesheimer et al., 2005, Levav and Zhu, 2009]. Similar to the way that maladaptive genes will neither replicate nor be passed on, maladaptive social normative behaviors are unlikely to survive in the presence of competing behaviors that are more useful - e.g. for group affiliation, self concept- or group identity management. If accepted and internalized, injunctive or descriptive norms become subjective. Thus, normative behavior is integrated into the self concept, and teenagers show conformity even in the absence of other group members or effective incentive mechanisms.

Hypothesis 6 (H6)**.** *Teenagers shift their financial decision making priorities in order to move closer to the average expression of how their friends allocate their financial resources.*

3.3.5 Ability dependent trial accomplishments as motivations for changes in financial decision making practices

In many cultures, people are already socialized in their adolescence, and learn that they can find their desired place in society through their role as consumers [Moschis, 1985, Adler et al., 1977]. In their function to sell products and services, organizations devote much effort to understanding and enhancing the effectiveness of marketing activities, and thus tailor products or services, pricing, distribution channels and communication messages to the respective target audience. As a consequence, teenagers are constantly facing temptations to spend their money. Therefore, we expect that it is not easy for them to cut back on the consumption levels they require to fulfill utilitarian needs or to tell a coherent story about themselves [Giddens, 1991].

Teenagers can use their own trial accomplishments as sources to form efficacy expectations or use vicarious trial accomplishments by observing their friends' trials. In the following paragraphs, we list our hypotheses regarding how teenagers' expectations concerning the realization of particular financial decision making practices are associated with a specific set of their own abilities or with the aggregated level of these abilities among their friends.

On the one hand, we hypothesize that adolescents' self efficacy [Bandura, 1977] or the confidence in their ability to resist these temptations depends on their self control, which is defined as the capacity to adapt the self to fit the social environment across a variety of domains [Tangney et al., 2004]. Teenagers who lack self control might seriously doubt their ability to reallocate financial resources from consumption to savings or forego consumption in favor of donations. On the other hand, [Gul and Pesendorfer, 2001] and [Bucciol, 2012] argue that forward looking adolescents prefer to eliminate temptations by strategically deliquefying money. In doing so, depending on their time preferences, teenagers can effectively tie their hands through the limitation of preferred sets of spending alternatives by allocating more money from consumption to donations or trading in consumption for the accrual of savings.

Hypothesis 7a (H7a)**.** *Teenagers' self-control, and the aggregated average level of self-control among their friends have a positive impact on allocations to savings and donations and a negative impact on allocations to spending.*

Hypothesis 7b (H7b)**.** *Teenagers' forward looking time preferences, and the aggregated average level of forward looking time preferences among their friends have a positive impact on allocations to savings and donations and a negative impact on allocations to spending.*

[Bandura, 1977] argues that besides variations on magnitude, self efficacy can also vary based on generality and strength. In the face of disconfirming experiences, people with strong efficacy expectations will persevere in their coping efforts, whereas people are easily discouraged if they have weak expectations concerning their self efficacy. Resilience is defined as people's capacity for positive adaptation in the face of stress or obstacles [Campbell-Sills and Stein, 2007]. On the one hand, we expect resilience to increase teenagers' general confidence that they will eventually succeed, no matter what they set out to do. As a consequence, through general self efficacy, teens might sustain their efforts to relinquish consumption in order to put up savings or to reallocate financial resources from consumption to donations. On the other hand, resilience might be a consequence of a long trial of disconfirming experiences in the pursuit of a specific goal. As such, resilience is the ability to attribute failure to lack of effort or chance [Dweck, 1975, Langer, 1975]. As a result, the accrual of resilience through specific self efficacy is progressing with every disconfirming experience, whereas every success in the pursuit of this specific goal can stop or even reduce self efficacy, if chance provides a series of fortuitous circumstances for confirming experiences.

Hypothesis 7c (H7c)**.** *Teenagers' resilience, and the aggregated average level of resilience among their friends have a positive impact on allocations to savings and donations and a negative impact on allocations to spending.*

Investigating potential determinants of people's financial literacy, [Lusardi et al., 2010] found that acquiring cognitive abilities is similar to investing financial resources in assets with a delayed payoff. Therefore, people with time preferences discounting the future more heavily, may be less willing to make such investments. Furthermore, people's opportunities to acquire cognitive abilities in their social systems were additionally found to have significant explanatory power to predict variations in financial literacy [Lusardi et al., 2010]. In adult populations, [Lusardi, 1999] found that people's allocation of financial resources to savings is positively affected by financial literacy, measured as a basic understanding of financial numeracy and risk diversification. Therefore, we expect that successful reallocation of financial resources from spending to donations or savings depends on financial literacy [Lusardi, 1999], time preferences [Lusardi et al., 2010] and cognitive abilities such as numerical- or linguistic proficiency [Banks et al., 2010].

Hypothesis 7d (H7d)**.** *Teenagers' financial literacy, and the aggregated average level of financial literacy among their friends have a positive impact on allocations to savings and donations and a negative impact on allocations to spending.*

Hypothesis 7e (H7e)**.** *Teenagers' cognitive abilities, and the aggregated average level of cognitive abilities among their friends have a positive impact on allocations to savings and donations and a negative impact on allocations to spending.*

3.4 Data and method

The purpose underlying our selection of samples was to find two European countries with similar school structures, comparable economies, but simultaneously representing societies with largely different values or lifestyles. Figure 1 of the appendix displays the positions of 76 countries on seven different cultural orientations. While Western European countries are culturally oriented towards intellectual autonomy and egalitarianism, Eastern European cultures are oriented towards harmony. Figure 2 of the appendix illustrates the average amount of money households in these cultural groups are spending on a variety of purposes. We selected samples of schools in Switzerland and Poland as representatives for each cultural group in Europe. Both economies are comparable in size, and although the respective households are spending similar shares of their incomes on average, their consumption patterns and aggregate spending volumes they allocate to a variety of consumption purposes are largely different. Despite having selected multiple countries, our intention for the current article is not to compare dynamics in financial decision making and their co-evolution with social network structures across countries.

Our study is designed as a longitudinal three-wave panel. We commissioned three surveys starting in October 2015 until December 2016 in both Switzerland and Poland. Across three waves, we interviewed pupils, who entered compulsory- or voluntary secondary education on the 7th and 9th grades respectively. Thus, the observation period starts at a point, where all participants are assigned to new teachers and reassembled in new classes, such that in the aggregate, they are exposed to a relatively new pool of peers, whom they did not know before.

3.4.1 Samples

Schools are perfect examples for organizational foci [Feld, 1981] and provide ideal environments to study the co-evolution of processes, which this article sets out to investigate for many reasons. First, the main function of schools is to provide an environment for children and adolescents to acquire cognitive and social skills. Second, schools are arenas, where pupils can observe traits and behaviors of their peers and thus validate their own. As a consequence, these processes display considerable dynamics. Third, although hierarchically nested class structures still dominate in primary education, pupils are no longer nested in single classes during secondary education. To some extent, they can self-select into performance classes for specific subjects. Such an environment can foster collaboration and knowledge exchange. Third, while schools are embedded in the regulatory environment of the government, pupils in the environment of schools are protected from various external contexts, which could potentially co-determine their behavior. Following exemplary studies from previous research [Mercken et al., 2010, Steglich et al., 2010b, Knecht et al., 2010, Solish et al., 2010, Ellwardt et al., 2012, Friemel, 2012, Haye et al., 2013], we conclude that this environment can be seen as an ideal context for our study.

3.4.2 Design

The waves in our longitudinal design are representing the number of times pupils were interviewed. [Friemel, 2012] argues that the dynamics of socialization processes - such as those under consideration of this study - are expected to be highest at the beginning of the group formation process. Thus, we designed the schedule, according to which surveys were administered to pupils with proportionally increasing time windows between waves. The intention underlying such a longitudinal design is to make sure that enough data are collected to be able to capture all dynamics in the processes under consideration, and simultaneously limit the exposure of respondents to surveys. In both countries, subjects in the compulsory and voluntary secondary school cohorts entered at the age of 12 or 13 and left at the age of 15 or 16. The sample size and composition is summarized in Table 3.1.

3.4.3 Procedures

All procedures contributing to this work are in compliance with the ethical standards of the relevant national and institutional committees. Every survey commissioned in specific school classes was supervised by trained students. In every wave, data was collected during a full school hour of 45 minutes for each cohort. Data was collected using the same method across every wave for each pupil to eliminate method bias. While surveys commissioned in Poland were administered online, respondents surveyed in Switzerland were provided with questionnaires in paper and pencil form. Several weeks before data collection started, pupils and parents were informed about the design and purpose of the study. We used different approaches to obtain parental consent for the participation of Swiss- and Polish pupils in our study due

to the unique regulations concerning data protection in each respective country. In Poland, parents were specifically asked to opt-in. From a total of 2'743 pupils sampled in Poland, approximately 67% of the corresponding parents provided their consent. In contrast, parents in Switzerland were provided with an opt-out possibility. Out of all 1'193 pupils in the Swiss sample, none of the corresponding parents made use of that possibility.

In order to make the school classes comparable in terms of participation rates across countries, 86 secondary school classes, where opt-out proportions exceeded 50% or opt-in ratios were falling below 50% in any given wave, were excluded from the analysis. Table 3.1 summarizes the result of this process. The samples we used for our analyses include 73 secondary school classes from Switzerland and Poland.

Table 3.1: **Panel size in Switzerland and Poland**

Country	Wave	Panel			Analysis		
		sites	classes	pupils	sites	classes	pupils
Switzerland	1	8	55	1'183	7	44	890
	2	8	55	1'193	7	44	890
	3	7	44	890	7	44	890
Poland	1	31	105	2'733	6	29	670
	2	29	105	2'743	6	29	670
	3	29	105	2'700	6	29	670

3.4.4 Measures

For our investigation of the dynamics in financial decision making and its co-evolution with social network structures, this study uses the following measures.

Values

Our study uses the Portrait Value Questionnaire [Schwartz et al., 2012] to collect data on basic human values of respondents. The scale includes 13 items asking respondents to compare themselves to people described in short statements. Respondents are asked to evaluate the similarity on a six-point scale ranging from "not similar at all" to "very similar".

Social network structures

The friendship network data was collected with a roster design, listing the names of all classmates, including those, who did not participate in the survey or those, who were absent from their classes at the dates scheduled for the waves. Pupils indicated the strength of their friendships on a six point scale ranging from "very close" to "no friendship at all" as measured by the proportion of leisure or recreation time they spent together voluntarily [Bukowski et al., 1994]. However, the methodology we applied in our analyses is restricted to binary network data. Dichotomizing networks above or below the level of five respectively creates very sparse or dense networks, yielding little network dynamics. Therefore, the cut-off level creating the dichotomy of friendship vs. no friendship was set at the weight of five.

Financial decision making

To test our hypotheses it is important to frame financial endowments as disposable income. Therefore, the position of the corresponding section in the questionnaire was chosen such that it could be incentivized by a lottery. In the preceeding section, pupils were matched with anonymous peers from different classes and instructed to divide a monetary endowment between themselves and the peer with whom they were matched in simultaneous dictator games. In the lottery, one pupil was selected at random from each class to win the amount of money they were assigned in the dictator game. Due to different regulations concerning data protection and schools' responsibilities concerning the guardianship for their pupils in each respective country, we were exceptionally granted permission to use our incentive mechanism at Swiss schools, whereas we did not obtain permission to do so at Polish schools. Therefore, the lottery winnings, which were paid out in hard currency to the selected participants in Switzerland, were framed as imaginary winnings in the corresponding waves of Polish questionnaires.

In the section on financial endowment allocations, pupils were then asked how they would allocate their winnings, if they were to be randomly selected as beneficiaries of the lottery. In our questionnaire,

the items for discretionary expenditures from [Crouch et al., 2007] were aggregated into generic categories. Pupils were asked to indicate the proportion of their winnings they would allocate to "consumption", "savings", "donations", and "other purposes". If pupils indicated their willingness to donate winnings, they were asked to select one out of four categories: "nature protection", "animal protection", "diseases and handicaps" or "poverty and catastrophes" and then choose one out of three charitable organizations. The proportions of the winnings allocated to "donations" were then pooled and paid out to the charitable organizations chosen by the pupils.

Time preferences

The proportions allocated to "consumption" and "other purposes" were paid in direct succession of the survey, while the share of winnings allocated to "savings" was paid out nine months later. To measure time preferences and the ability to delay immediate gratification, pupils were asked how much of their winnings they would sacrifice in order to receive the payment immediately as opposed to nine months later.

Financial Literacy

To measure the financial literacy of pupils, this study uses the concept of interest compounding, which pupils should have some understanding of, if they are to use these concepts to make financial decisions [Lusardi et al., 2010]. Pupils were confronted with two contrasting scenarios. In the first scenario, pupils were asked to imagine depositing 100 currency units in a savings account, which would yield 1% interest per year. In the second scenario, pupils were instructed to imagine taking out a loan of 100 currency units from a bank, which would run for the term of one year with 1% interest. In both scenarios, pupils were asked whether the funds, which are due for repayment or available for withdrawal in one year are more, less, or equal to the funds they deposited or received as a loan. In both scenarios, pupils were additionally given the option to indicate whether they don't know the correct solution or refuse to answer.

Cognitive abilities

In both countries, pupils are given grades for a set of subjects, depending on their current level of education. We were given access to performance evaluations on specific sets of subjects at the discretion of each school participating in our study. Based on previous literature on financial resource management [Lusardi et al., 2010], this study uses grades for school performance in mathematics as well as the native languages in both countries. The most commonly used grading system in both countries ranges from 1 to 6, where 6 represents the highest- and 1 the lowest possible grade. The differences how predicates are assigned to grades across countries, are shown in Table 6.1 of the Appendix.

Self-control

To measure the capacity to change and adapt oneself to the environment, this study uses a 10 point scale for self control and -regulation, as developed by [Tangney et al., 2018]. Items to be evaluated are including the ability to resist temptations, to break disadvantageous habits, to focus in the presence of distractions, and to regulate impulses.

Resilience

To measure the capacity for positive adaptation in the face of stress or difficulty, this study uses a 10 point scale for resilience, as developed by [Campbell-Sills and Stein, 2007]. Pupils were asked to evaluate items such as the ability to cope with stress or hardship, to recover from defeat, and to achieve goals in the presence of handicaps.

3.4.5 Analytical approach

We are drawing on stochastic actor-oriented network models (SAOMs) [Snijders, 2001, Snijders et al., 2010, Ripley et al., 2011] to investigate the dynamic processes of changes in financial decision making within friendship networks. Changes in behavior and network ties between panel waves are at the core of these models. On the one hand, behaviors of actors can change over time. Such changes can either be the outcome of actors' characteristics (e.g., actors change behaviors because of values they

currently prioritize) or of their peers' characteristics (e.g., actors change behaviors because of values their friends prioritize). On the other hand, relationships between actors can emerge or disappear in time. Such changes in the network structure can be the outcome of an actor's structural position within the network, (e.g., actors form ties to people because they are friends of friends), an actor's characteristics (e.g., actors are attractive because of values they prioritize), or characteristics shared by actors (e.g., actors are attractive because they have similar value priorities). In a wide variety of contexts, SAOMs are used to study network dynamics and behavior change [Van de Bunt et al., 2005, Van Duijn et al., 2003, Schaefer et al., 2011] or the co-evolution of networks and actor behavior [Checkley and Steglich, 2007, Burk et al., 2007, Pearson et al., 2006, Steglich et al., 2010b, Lewis et al., 2012].

Estimation procedure

Modeling the change of behavior and network ties, SAOMs are applied to longitudinal behavior as well as complete, directed and longitudinal networks. Although these types of data are measured at discrete waves, SAOMs assume a continuing underlying process with behavior- or network tie changes occurring sequentially. Actors can make decisions regarding their behavior (e.g., increasing- or decreasing their money allocation priorities, as well as keeping their current state) or their network structure (e.g., creating or dissolving network ties, as well as keeping the current state). Each individual decision an actor makes is called a mini-step. A mini-step is modeled by two underlying processes.

First, a rate function determines the order, according to which actors are allowed to make decisions. Using a period-wise constant rate function, we do not assume any difference in the rate of change between actors. Second, the chosen actors evaluate all potential changes in their behavior and network space. Assuming specific dynamics to happen, an objective function including the corresponding parameters is specified, and actors consider how each change in their behavior or network structure would affect their utility regarding these parameters. For factors that are combined in the objective function and thus determine actors' decisions, SAOMs use the term 'effects'. "Average similarity" is an example for such effects. If the parameter for average similarity is positive, actors are more likely to adapt their behaviors towards the average expressions of their friends compared to keeping their current state or diverging to more extreme behavioral expressions. Thus, actors compare the outcome of the objective function for each behavior- or network state that results from every possible change in behavior or network structure. At the conclusion of each mini-step, the behavior- or network states, which are most likely to be chosen by actors are those with the highest value in the objective function. In a series of mini-steps connecting empirical observations, parameters that attach relative importance to different effects are estimated. The interpretation of effects is similar to parameters from a multinomial logistic regression, where θ is the log odds ratio, as they co-determine the relative likelihood of a mini-step to be realized. For a non-technical introduction to the method, including different methods of parameter estimation, we refer to [Snijders, 2001, Steglich et al., 2006] and [Snijders et al., 2010].

The capacity to capture the mechanisms that drive behavior- and network change simultaneously is the main reason why we decided to use SAOMs. First, the dynamics of behaviors and networks are conditioned on the first observation. As a result, no assumptions regarding the respective states of equilibrium have to be made. Second, the multinomial nature of the models allows for each process to be estimated net of the other.

Model specification

Based on theoretical considerations from past experience with these models as well as results from previous studies using this method with similar data, we selected the following set of structural effects for our analyses [Steglich et al., 2010b]. *Outdegree* measures the average number of outgoing links, and can be compared to an intercept in regression analyses. *Reciprocity* $s_i^{net}(x) = \sum_j x_{ij}x_{ji}$ is the tendency of actors to reciprocate friendship nominations they received from alters. *Transitivity* or geometrically weighted edgewise shared partners $s_i^{net}(x) = \sum_{j=1}^{n} x_{ij}e^{\alpha}\{1-(1-e^{-\alpha})^{\sum_{h=1}^{n} x_{ih}x_{hi}}\}$ captures the tendency of actors to be linked to friends of friends. *Indegree popularity* $s_i^{net}(x) = \sum_j x_{ij} \sum_h x_{hj}$ controls for the dispersion in indegrees and investigates if people who already have a lot of incoming ties are more popular as a targets for further friendship nominations. *Linear shape* $s_i^{val}(z) = z_i$ controls for the general tendency to change one's money allocation priorities. The inclusion of the *quadratic shape* effect, which measures the tendency to change money allocation priorities depending on one's current priority on specific allocations, could not be empirically justified in our data. As a consequence, we excluded this effect from our analyses.

First, we specify the model with regard to changes in allocations of financial resources. For all analyses reported in tables 3.2, 3.3, 3.4 and 3.5, models are specified to include *average similarity* effects, as well as *effects from values and abilities*. The former effects capture the tendency to adapt one's money allocation priorities in order to become more similar to one's friends. The latter estimate the dynamic effects of values and abilities on money allocation priorities. Additional models further include *effects for values and abilities of the average alter*. These effects estimate differences in money allocation priorities depending on the average expression of values and abilities among friends.

Second, in all analyses, we control for *ego-, alter-, and dyadic effects* based on *value priorities*, which refer to the tendency to send or receive friendship ties based on such priorities, or to the preference for having friendship relationships with peers, who are prioritizing similar values. Additional models further include an effect for having the *same sex*. The statistic for the gender effect is zero, if sender and recipient of the tie have different genders, and one if they have the same gender. We excluded ego- and alter-effects for gender as we did not find any theoretical support for their inclusion in literature. *Ego-, alter-, and dyadic effects* for *money allocation priorities* are also included in additional models. These effects refer to the tendency to send or receive friendship ties based on money allocation priorities, or to the preference for having friendships with peers, who allocate their financial resources in similar ways.

Meta-analytical procedure

To aggregate our results in a meta-analysis, we use a two stage procedure. First, we apply an unconventional Method of Moments to estimate the model parameters and perform separate goodness of fit tests for each school class. Goodness of fit tests are simulating data on auxiliary statistics, which are compared to corresponding statistics of observed data. Complying with the standard for publications using SAOMs, we require adequate fit on the auxiliary statistics of indegree- and money allocation distributions, which was achieved on average for 50 % of all secondary school classes. Second, parameter estimations are aggregated for each class according to the meta-analytical method proposed by [Snijders and Baerveldt, 2003, Ripley et al., 2011].

In this meta-analysis, the mean and variance of the θ vector - the true parameter values for all effects in the chosen model specification - are estimated across all school classes. Results are reported in each column denoted accordingly, whereby the upper value is the mean μ_θ and the lower value represents the standard error σ_θ. For any given effect, μ_θ is interpreted as the log odds ratio. If μ_θ is estimated at 0.5, the odds ratio is $e^{\mu_\theta} = 1.65$, so the probability for this effect to be present is 65% higher compared to the probability for this effect to be absent. For each effect, μ_θ and σ_θ are tested using Fisher's combined probability tests, investigating if the null Hypothesis: $\theta = 0$ can be rejected in at least one school class [Mercken et al., 2010]. The tests are reported in each column denoted accordingly, whereby the upper values are results of two sided tests with the alternative Hypotheses $\theta \neq 0$ and the lower values are results of Fisher's left- and right sided tests with alternative Hypotheses $\theta < 0$ and $\theta > 0$ respectively.

3.5 Results

The following section is structured according to our Hypotheses. Results on a subset of effects used for Hypothesis testing are reported in tables 3.2, 3.3, 3.4 and 3.5. Results of the corresponding goodness of fit tests are listed at the bottom of each table. All meta-analyses including the complete lists of effects are shown in the corresponding tables of the Appendix as indicated in the columns denoted "Appendix".

3.5.1 Values as motivations for financial decision making

The results provide full support for Hypothesis 5a. As shown in the section on savings in Table 3.2, actors with higher priorities on values related to self protection, which are regulating personal interests - such as self-enhancement - are less likely to engage in financial decision making practices to reallocate money from savings to other purposes compared to actors in pursuit of conservation, openness to change or self-transcendence values.

The section on spending in Table 3.2 refers to our findings on Hypothesis 5b, which is fully supported by our data. Actors with higher priorities on openness to change-, self-enhancement- and conservation values are more likely to engage in practices to reallocate money from other purposes to spending compared to actors in pursuit of self-transcendence values.

Hypothesis 5c is partially supported by our data. The section on donations in Table 3.2 demonstrates that actors are giving more money to charities, if they place higher priorities on growth related values -

such as self transcendence and openness to change. However, we found no evidence that actors in pursuit of self-enhancement values are more likely to give money to charity.

Table 3.2: **Values and financial decision making practices**

	Savings	**Self-transcendence**		**Self-enhancement**		**Conservation**		**Openness to change**		
Hypothesis	Effect	μ_θ σ_θ	Fisher's p Fisher's [l,r] p	μ_θ σ_θ	Fisher's p Fisher's [l,r] p	μ_θ σ_θ	Fisher's p Fisher's [l,r] p	μ_θ σ_θ	Fisher's p Fisher's [l,r] p	Appendix
	selection effects:									**Table 6.28**
	savings change	-0.073 0.023	*** [0 , 1]	-0.075 0.019	*** [0 , 1]	-0.083 0.020	*** [0 , 1]	-0.067 0.022	*** [0 , 0.999]	**Table 6.28**
	effects from:									
	self transcendence	-0.051 0.028	† [0.031 , 0.989]							**Table 6.28**
	self enhancement			-0.018 0.022	[0.069 , 0.832]					**Table 6.28**
H5a	**conservation**					-0.041 0.022	† [0.025 , 0.969]			**Table 6.28**
	openness							-0.030 0.028	[0.154 , 0.935]	**Table 6.34**

	Spending	**Conservation**		**Openness to change**		**Self-enhancement**		**Self-transcendence**		
Hypothesis	Effect	μ_θ σ_θ	Fisher's p Fisher's [l,r] p	μ_θ σ_θ	Fisher's p Fisher's [l,r] p	μ_θ σ_θ	Fisher's p Fisher's [l,r] p	μ_θ σ_θ	Fisher's p Fisher's [l,r] p	Appendix
	selection effects:									**Table 6.29**
	spending change	-0.050 0.019	** [0.007 , 0.982]	-0.064 0.019	*** [0 , 0.998]	-0.047 0.020	* [0.013 , 0.967]	-0.056 0.017	*** [0.001 , 1]	**Table 6.29**
	effects from:									
	conservation	0.041 0.025	† [0.984 , 0.015]							**Table 6.29**
	openness			0.058 0.043	[0.72 , 0.004]					**Table 6.35**
H5b	**self enhancement**					0.039 0.022	† [0.95 , 0.064]			**Table 6.29**
	self transcendence							0.032 0.029	[0.725 , 0.061]	**Table 6.29**

	Donations	**Openness to change**		**Conservation**		**Self-transcendence**		**Self-enhancement**		
Hypothesis	Effect	μ_θ σ_θ	Fisher's p Fisher's [l,r] p	μ_θ σ_θ	Fisher's p Fisher's [l,r] p	μ_θ σ_θ	Fisher's p Fisher's [l,r] p	μ_θ σ_θ	Fisher's p Fisher's [l,r] p	Appendix
	selection effects:									**Table 6.30**
	donations change	-0.405 0.054	*** [0 , 1]	-0.444 0.066	*** [0 , 1]	-0.408 0.053	*** [0 , 1]	-0.380 0.052	*** [0 , 1]	**Table 6.30**
	effects from:									
	openness	0.092 0.053	† [0.957 , 0.082]							**Table 6.30**
	conservation			0.014 0.049	[0.887 , 0.304]					**Table 6.30**
H5c	**self transcendence**					0.104 0.050	* [0.998 , 0.044]			**Table 6.30**
	self enhancement							0.004 0.038	[0.907 , 0.576]	**Table 6.30**

	Goodness of fit	**Self-transcendence**		**Self-enhancement**		**Conservation**		**Openness to change**	
	statistics:	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]
	GOF (outdegree)	0.291 0.304	*** [40 / 28]	0.289 0.300	*** [39 / 27]	0.290 0.298	*** [42 / 28]	0.280 0.312	*** [39 / 25]
	GOF (savings)	0.264 0.250	*** [40 / 29]	0.276 0.276	*** [39 / 29]	0.280 0.263	*** [42 / 31]	0.281 0.271	*** [39 / 29]
	GOF (spending)	0.323 0.311	*** [36 , 27]	0.333 0.306	*** [36 , 27]	0.321 0.305	*** [36 , 24]	0.315 0.300	*** [36 , 27]
	GOF (donations)	0.345 0.279	*** [41 , 34]	0.311 0.265	*** [40 , 33]	0.305 0.248	*** [38 , 31]	0.315 0.246	*** [42 , 37]
	GOF (overall)		[62 , 37]		[61 , 36]		[62 , 36]		[60 , 36]

$^{***}p < 0.01$, $^{**}0.01 < p < 0.05$, $^{*}0.05 < p < 0.1$, $^{\dagger}p < 0.1$

3.5.2 Social norms as motivations for financial decision making

With regard to saving- and consumption specific financial decision making practices, our findings provide full support for Hypothesis 6. The section on savings in Table 3.3 shows that actors are up to 6 times (log odds ratio = 1.953, odds ratio = 7.049) more likely to adapt their priorities for practices allocating money to savings towards the average expression of their friends' priorities, as opposed to diverging or keeping their current state of savings practices.

As shown in the section on spending in Table 3.3, actors are approximately 2.5 times (log odds ratio = 1.218, odds ratio = 3.381) more likely to change their priorities for practices allocating money to spending towards the average expression of their friends' spending practices, instead of diverging to more extreme spending practices or keeping their current state.

Hypothesis 6 is not supported by our data, as shown in the section on donations of Table 3.3. Actors are as likely to adapt their priorities for practices of giving money to charity towards the average expression of their friends' priorities, as they are to keep their current state of donation practices or to diverge from the average expression of their friends' priorities.

Table 3.3: **Social norms and financial decision making practices**

	Savings	**Self-transcendence**		**Self-enhancement**		**Conservation**		**Openness to change**		
Hypothesis	Effect	μ_θ σ_θ	Fisher's p Fisher's [l,r] p	μ_θ σ_θ	Fisher's p Fisher's [l,r] p	μ_θ σ_θ	Fisher's p Fisher's [l,r] p	μ_θ σ_θ	Fisher's p Fisher's [l,r] p	Appendix
	selection effects:									**Table 6.28**
	savings change	-0.073 0.023	*** [0 , 1]	-0.075 0.019	*** [0 , 1]	-0.083 0.020	*** [0 , 1]	-0.067 0.022	*** [0 , 0.999]	**Table 6.28**
H6	**avg similarity**	1.834 0.476	*** [1 , 0]	1.953 0.591	*** [1 , 0]	1.636 0.500	*** [0.999 , 0]	1.572 0.480	*** [1 , 0]	**Table 6.28**

	Spending	**Conservation**		**Openness to change**		**Self-enhancement**		**Self-transcendence**		
Hypothesis	Effect	μ_θ σ_θ	Fisher's p Fisher's [l,r] p	μ_θ σ_θ	Fisher's p Fisher's [l,r] p	μ_θ σ_θ	Fisher's p Fisher's [l,r] p	μ_θ σ_θ	Fisher's p Fisher's [l,r] p	Appendix
	selection effects:									**Table 6.29**
	spending change	-0.050 0.019	** [0.007 , 0.982]	-0.064 0.019	*** [0 , 0.998]	-0.047 0.020	* [0.013 , 0.967]	-0.056 0.017	*** [0.001 , 1]	**Table 6.29**
H6	**avg similarity**	1.152 0.451	* [0.89 , 0.024]	1.141 0.438	** [0.926 , 0.02]	1.218 0.500	* [0.848 , 0.024]	0.978 0.437	* [0.882 , 0.025]	**Table 6.29**

	Donations	**Openness to change**		**Conservation**		**Self-transcendence**		**Self-enhancement**		
Hypothesis	Effect	μ_θ σ_θ	Fisher's p Fisher's [l,r] p	μ_θ σ_θ	Fisher's p Fisher's [l,r] p	μ_θ σ_θ	Fisher's p Fisher's [l,r] p	μ_θ σ_θ	Fisher's p Fisher's [l,r] p	Appendix
	selection effects:									**Table 6.30**
	donations change	-0.405 0.054	*** [0 , 1]	-0.444 0.066	*** [0 , 1]	-0.408 0.053	*** [0 , 1]	-0.380 0.052	*** [0 , 1]	**Table 6.30**
H6	avg similarity	-0.521 0.788	 [0.56 , 0.767]	-0.494 0.914	 [0.559 , 0.801]	-0.021 0.765	 [0.736 , 0.697]	-0.054 0.769	 [0.83 , 0.767]	**Table 6.30**

Goodness of fit	**Self-transcendence**		**Self-enhancement**		**Conservation**		**Openness to change**	
statistics:	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]
GOF (outdegree)	0.291 0.304	*** [40 / 28]	0.289 0.300	*** [39 / 27]	0.290 0.298	*** [42 / 28]	0.280 0.312	*** [39 / 25]
GOF (savings)	0.264 0.250	*** [40 / 29]	0.276 0.276	*** [39 / 29]	0.280 0.263	*** [42 / 31]	0.281 0.271	*** [39 / 29]
GOF (spending)	0.323 0.311	*** [36 , 27]	0.333 0.306	*** [36 , 27]	0.321 0.305	*** [36 , 24]	0.315 0.300	*** [36 , 27]
GOF (donations)	0.345 0.279	*** [41 , 34]	0.311 0.265	*** [40 , 33]	0.305 0.248	*** [38 , 31]	0.315 0.246	*** [42 , 37]
GOF (overall)		[62 , 37]		[61 , 36]		[62 , 36]		[60 , 36]

$^{***}p < 0.01$, $^{**}0.01 < p < 0.05$, $^{*}0.05 < p < 0.1$, $^{\dagger}p < 0.1$

3.5.3 Ability dependent expectations on self efficacy for changes in financial decision making

Our findings provide partial support for Hypothesis 7a, as shown in the sections on self-control in Table 3.4. On the one hand, actors with higher levels of self-control are more likely to accelerate their efforts in trials to evade or withstand enticing consumption alternatives and increase the allocation of financial resources to savings instead. On the other hand, actors with lower self-control are more likely to free illiquid financial resources for the purpose of spending. However, we find no association between actors' self-control and and the self efficacy to entrust financial resources - which were previously devoted to other purposes - to charitable organizations. We also did not find any evidence in support of an association between aggregated levels of friends' self-control and actors' self efficacy to change financial decision making practices.

Hypothesis 7b is partially confirmed by our data. As demonstrated in the sections on time preferences in Table 3.4, forward looking people seem more capable to reallocate money to savings, whereas present-oriented people have a pronounced inclination to allocate money to spending. However, we find no association between actors' time preferences and the self efficacy for giving financial resources to charity, which were previously devoted to other purposes. Moreover, we did not find any evidence in support of an association between actors' self efficacy to change financial decision making practices and aggregated levels of their friends' time preferences.

Our results provide sufficient evidence to partially support Hypothesis 7c, as shown in the sections on resilience in Table 3.4. Instead of contributing to the self efficacy for increasing financial resource allocations to savings through the limitation of allocations to spending, resilience seems to be a reflection of the corresponding self efficacy. We find no association between resilience and the self efficacy for liquefying financial resources - which are tied in the form of savings - and thus freeing said resources for the purpose of spending or donations. It appears that both actors' own resilience as well as the aggregate level of resilience accumulated by their friends are negatively and exclusively associated with savings.

As shown in the sections on cognitive abilities (mathematics and linguistics) in Table 3.5, we find sufficient evidence to partially support Hypothesis 7d. Actors with higher cognitive abilities are more likely to increase their allocations to savings, whereas actors with lower cognitive abilities are more likely to increase their allocations to spending. However, we don't find any association between actors' self effi-

Table 3.4: **Abilities and financial decision making practices**

	Savings	**Self-transcendence**		**Self-enhancement**		**Conservation**		**Openness to change**		
Hypothesis	Effect	μ_θ σ_θ	Fisher's p Fisher's [l,r] p	μ_θ σ_θ	Fisher's p Fisher's [l,r] p	μ_θ σ_θ	Fisher's p Fisher's [l,r] p	μ_θ σ_θ	Fisher's p Fisher's [l,r] p	Appendix
	selection effects:									**Table 6.28**
	savings change	-0.073 0.023	*** [0 , 1]	-0.075 0.019	*** [0 , 1]	-0.083 0.020	*** [0 , 1]	-0.067 0.022	*** [0 , 0.999]	**Table 6.28**
	self-control:									
H7a	**effect from own**	0.057 0.033	† [0.951 , 0.057]	0.084 0.034	* [0.997 , 0.02]	0.069 0.031	* [0.989 , 0.011]	0.052 0.034	 [0.88 , 0.073]	**Table 6.28**
	avg alter effect	0.050 0.181	 [767 , 0.723]	0.085 0.178	 [0.733 , 0.855]	0.076 0.166	 [0.792 , 0.727]	0.151 0.189	 [0.521 , 0.956]	**Table 6.28**
	time preferences:									
H7b	**effect from own**	-0.021 0.017	 [0.957 , 0.305]	-0.025 0.014	† [0.983 , 0.533]	-0.028 0.014	* [0.973 , 0.012]	-0.035 0.017	* [0.974 , 0.033]	**Table 6.34**
	avg alter effect	0.055 0.097	 [0.311 , 0.816]	0.077 0.087	 [0.219 , 0.966]	0.136 0.102	 [0.190 , 0.951]	0.126 0.091	 [0.224 , 0.880]	**Table 6.34**
	resilience:									
H7c	**effect from own**	-0.047 0.031	 [0.072 , 0.91]	-0.056 0.037	 [0.06 , 0.838]	-0.047 0.029	 [0.032 , 0.847]	-0.037 0.034	 [0.115 , 0.933]	**Table 6.28**
	avg alter effect	-0.146 0.172	 [0.980 , 0.537]	-0.269 0.162	† [0.998 , 0.428]	-0.305 0.169	† [0.997 , 0.256]	-0.215 0.184	 [0.987 , 0.519]	**Table 6.28**

	Spending	**Conservation**		**Openness to change**		**Self-enhancement**		**Self-transcendence**		
Hypothesis	Effect	μ_θ σ_θ	Fisher's p Fisher's [l,r] p	μ_θ σ_θ	Fisher's p Fisher's [l,r] p	μ_θ σ_θ	Fisher's p Fisher's [l,r] p	μ_θ σ_θ	Fisher's p Fisher's [l,r] p	Appendix
	selection effects:									**Table 6.29**
	spending change	-0.050 0.019	** [0.007 , 0.982]	-0.064 0.019	*** [0 , 0.998]	-0.047 0.020	* [0.013 , 0.967]	-0.056 0.017	*** [0.001 , 1]	**Table 6.29**
	self-control:									
H7a	**effect from own**	-0.089 0.033	** [0.023 , 0.999]	-0.078 0.034	* [0.051 , 0.998]	-0.082 0.035	* [0.051 , 0.999]	-0.085 0.030	*** [0.016 , 0.999]	**Table 6.29**
	avg alter effect	-0.092 0.262	 [0.937 , 0.573]	-0.186 0.232	 [0.962 , 0.435]	-0.124 0.232	 [0.913 , 0.652]	-0.029 0.236	 [0.909 , 0.596]	**Table 6.29**
	time preferences:									
H7b	**effect from own**	0.024 0.020	 [0.232 , 0.956]	0.019 0.020	 [0.152 , 0.951]	0.023 0.016	† [0.316 , 0.978]	0.021 0.021	 [0.302 , 0.846]	**Table 6.35**
	avg alter effect	-0.064 0.092	 [0.783 , 0.729]	-0.030 0.091	 [0.835 , 0.743]	-0.044 0.081	 [0.794 , 0.668]	-0.046 0.093	 [0.754 , 0.644]	**Table 6.35**
	resilience:									
H7c	effect from own	0.017 0.031	 [0.89 , 0.19]	0.010 0.031	 [0.807 , 0.242]	0.000 0.035	 [0.681 , 0.35]	0.046 0.029	 [0.991 , 0.065]	**Table 6.29**
	avg alter effect	0.108 0.183	 [0.589 , 0.944]	0.295 0.201	 [0.333 , 0.992]	0.151 0.196	 [0.485 , 0.975]	0.237 0.174	 [0.302 , 0.987]	**Table 6.29**

	Donations	**Openness to change**		**Conservation**		**Self-transcendence**		**Self-enhancement**		
Hypothesis	Effect	μ_θ σ_θ	Fisher's p Fisher's [l,r] p	μ_θ σ_θ	Fisher's p Fisher's [l,r] p	μ_θ σ_θ	Fisher's p Fisher's [l,r] p	μ_θ σ_θ	Fisher's p Fisher's [l,r] p	Appendix
	selection effects:									**Table 6.30**
	donations change	-0.405 0.054	*** [0 , 1]	-0.444 0.066	*** [0 , 1]	-0.408 0.053	*** [0 , 1]	-0.380 0.052	*** [0 , 1]	**Table 6.30**
	self-control:									
H7a	effect from own	0.044 0.065	 [0.651 , 0.506]	-0.004 0.080	 [0.386 , 0.626]	0.008 0.063	 [0.597 , 0.644]	0.062 0.053	 [0.927 , 0.264]	**Table 6.30**
	avg alter effect	0.070 0.371	 [0.840 , 0.848]	0.164 0.345	 [0.845 , 0.843]	0.070 0.634	 [0.942 , 0.711]	0.017 0.547	 [0.911 , 0.694]	**Table 6.30**
	time preferences:									
H7b	effect from own	0.021 0.044	 [0.560 , 0.540]	0.012 0.029	 [0.777 , 0.506]	-0.002 0.047	 [0.568 , 0.425]	-0.016 0.049	 [0.741 , 0.368]	**Table 6.36**
	avg alter effect	-0.086 0.146	 [0.942 , 0.430]	-0.067 0.126	 [0.855 , 0.568]	0.003 0.128	 [0.719 , 0.820]	0.029 0.202	 [0.816 , 0.661]	**Table 6.36**
	resilience:									
H7c	effect from own	-0.054 0.052	 [0.181 , 0.979]	-0.030 0.066	 [0.243 , 0.924]	-0.023 0.059	 [0.273 , 0.878]	-0.027 0.054	 [0.367 , 0.875]	**Table 6.30**
	avg alter effect	0.008 0.368	 [0.722 , 0.872]	0.193 0.364	 [0.583 , 0.942]	0.421 0.521	 [0.677 , 0.935]	0.268 0.506	 [0.692 , 0.900]	**Table 6.30**

	Goodness of fit	**Self-transcendence**		**Self-enhancement**		**Conservation**		**Openness to change**	
	statistics:	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]
	GOF (outdegree)	0.291 0.304	*** [40 / 28]	0.289 0.300	*** [39 / 27]	0.290 0.298	*** [42 / 28]	0.280 0.312	*** [39 / 25]
	GOF (savings)	0.264 0.250	*** [40 / 29]	0.276 0.276	*** [39 / 29]	0.280 0.263	*** [42 / 31]	0.281 0.271	*** [39 / 29]
	GOF (spending)	0.323 0.311	*** [36 , 27]	0.333 0.306	*** [36 , 27]	0.321 0.305	*** [36 , 24]	0.315 0.300	*** [36 , 27]
	GOF (donations)	0.345 0.279	*** [41 , 34]	0.311 0.265	*** [40 , 33]	0.305 0.248	*** [38 , 31]	0.315 0.246	*** [42 , 37]
	GOF (overall)		[62 , 37]		[61 , 36]		[62 , 36]		[60 , 36]

$^{***}p < 0.01$, $^{**}0.01 < p < 0.05$, $^{*}0.05 < p < 0.1$, $^{\dagger}p < 0.1$

cacy to entrust financial resources to charitable organizations and their cognitive abilities. Furthermore, our findings do not provide support for an association between actors' self efficacy to change financial decision making practices and aggregated levels of their friends' cognitive abilities.

Our data does not provide sufficient evidence to fully support Hypothesis 7e. The results in the sections on financial literacy in Table 3.5 show that actors with a higher financial literacy are less likely to allocate money to charitable organizations. However, actors do not change their charitable behavior based on the aggregated average expressions of their friends' financial literacy.

Table 3.5: **Literacy and financial decision making practices**

	Savings	**Self-transcendence**		**Self-enhancement**		**Conservation**		**Openness to change**		
Hypothesis	Effect	μ_θ σ_θ	Fisher's p Fisher's [l,r] p	μ_θ σ_θ	Fisher's p Fisher's [l,r] p	μ_θ σ_θ	Fisher's p Fisher's [l,r] p	μ_θ σ_θ	Fisher's p Fisher's [l,r] p	Appendix
	selection effects:									**Table 6.28**
	savings change	-0.073 0.023	*** [0 , 1]	-0.075 0.019	*** [0 , 1]	-0.083 0.020	*** [0 , 1]	-0.067 0.022	*** [0 , 0.999]	**Table 6.28**
	mathematics:									
	effect from own	0.046 0.037	 [0.969 , 0.327]	0.029 0.035	 [0.827 , 0.391]	0.021 0.036	 [0.802 , 0.521]	0.037 0.033	 [0.944 , 0.35]	**Table 6.31**
	avg alter effect	0.066 0.208	 [0.550 , 0.839]	0.125 0.239	 [0.407 , 0.926]	0.023 0.200	 [0.682 , 0.776]	-0.009 0.257	 [0.690 , 0.702]	**Table 6.31**
H7d	*linguistics:*									
	effect from own	0.035 0.038	 [0.939 , 0.43]	0.054 0.034	 [0.987 , 0.208]	0.059 0.031	† [0.974 , 0.19]	0.054 0.034	 [0.986 , 0.156]	**Table 6.31**
	avg alter effect	0.011 0.242	 [0.707 , 0.716]	-0.117 0.318	 [0.830 , 0.616]	0.121 0.272	 [0.533 , 0.906]	-0.040 0.320	 [0.717 , 0.719]	**Table 6.31**
	financial literacy:									
	effect from own	-0.046 0.061	 [0.606 , 0.116]	0.016 0.047	 [0.222 , 0.723]	0.002 0.045	 [0.483 , 0.536]	-0.014 0.052	 [0.315 , 0.393]	**Table 6.34**
H7e	avg alter effect	-0.016 0.259	 [0.656 , 0.429]	-0.086 0.241	 [0.714 , 0.431]	-0.110 0.230	 [0.763 , 0.328]	-0.014 0.206	 [0.677 , 0.454]	**Table 6.34**

	Spending	**Conservation**		**Openness to change**		**Self-enhancement**		**Self-transcendence**		
Hypothesis	Effect	μ_θ σ_θ	Fisher's p Fisher's [l,r] p	μ_θ σ_θ	Fisher's p Fisher's [l,r] p	μ_θ σ_θ	Fisher's p Fisher's [l,r] p	μ_θ σ_θ	Fisher's p Fisher's [l,r] p	Appendix
	selection effects:									**Table 6.29**
	spending change	-0.050 0.019	** [0.007 , 0.982]	-0.064 0.019	*** [0 , 0.998]	-0.047 0.020	* [0.013 , 0.967]	-0.056 0.017	*** [0.001 , 1]	**Table 6.29**
	mathematics:									
	effect from own	-0.040 0.032	 [0.276 , 0.941]	-0.050 0.033	 [0.241 , 0.943]	-0.040 0.031	 [0.296 , 0.856]	-0.031 0.031	 [0.264 , 0.835]	**Table 6.32**
	avg alter effect	-0.390 0.544	 [0.893 , 0.450]	-0.417 0.373	 [0.967 , 0.313]	-0.317 0.384	 [0.838 , 0.566]	-0.092 0.672	 [0.604 , 0.779]	**Table 6.32**
H7d	*linguistics:*									
	effect from own	-0.036 0.032	 [0.527 , 0.389]	-0.059 0.032	† [0.134 , 0.896]	-0.029 0.030	 [0.425 , 0.703]	-0.025 0.031	 [0.386 , 0.742]	**Table 6.32**
	avg alter effect	0.165 0.456	 [0.596 , 0.791]	-0.094 0.384	 [0.771 , 0.657]	0.260 0.518	 [0.567 , 0.841]	0.065 0.701	 [0.594 , 0.778]	**Table 6.32**
	financial literacy:									
	effect from own	-0.037 0.051	 [0.694 , 0.199]	0.006 0.058	 [0.321 , 0.401]	-0.010 0.046	 [0.565 , 0.489]	0.047 0.067	 [0.102 , 0.614]	**Table 6.35**
H7e	avg alter effect	0.023 0.251	 [0.307 , 0.788]	0.069 0.252	 [0.835 , 0.743]	0.118 0.220	 [0.258 , 0.798]	0.060 0.243	 [0.435 , 0.699]	**Table 6.35**

	Donations	**Openness to change**		**Conservation**		**Self-transcendence**		**Self-enhancement**		
Hypothesis	Effect	μ_θ σ_θ	Fisher's p Fisher's [l,r] p	μ_θ σ_θ	Fisher's p Fisher's [l,r] p	μ_θ σ_θ	Fisher's p Fisher's [l,r] p	μ_θ σ_θ	Fisher's p Fisher's [l,r] p	Appendix
	selection effects:									**Table 6.30**
	donations change	-0.405 0.054	*** [0 , 1]	-0.444 0.066	*** [0 , 1]	-0.408 0.053	*** [0 , 1]	-0.380 0.052	*** [0 , 1]	**Table 6.30**
	mathematics:									
	effect from own	0.030 0.105	 [0.731 , 0.656]	0.115 0.121	 [0.876 , 0.424]	0.014 0.105	 [0.699 , 0.587]	0.071 0.098	 [0.766 , 0.548]	**Table 6.33**
	avg alter effect	0.267 754	 [0.353 , 0.858]	0.214 1.010	 [0.433 , 0.688]	-0.032 0.617	 [0.638 , 0.377]	-0.019 0.710	 [0.577 , 0.795]	**Table 6.33**
H7d	*linguistics:*									
	effect from own	0.079 0.100	 [0.752 , 0.344]	0.071 0.117	 [0.63 , 0.624]	0.094 0.102	 [0.777 , 0.422]	-0.006 0.099	 [0.48 , 0.613]	**Table 6.33**
	avg alter effect	-0.304 0.418	 [0.949 , 0.319]	-0.028 0.365	 [0.797 , 0.432]	-0.369 0.400	 [0.982 , 0.266]	-0.148 0.333	 [0.916 , 0.423]	**Table 6.33**
	financial literacy:									
	effect from own	-0.170 0.126	† [0.901 , 0.224]	-0.202 0.115	† [0.948 , 0.149]	-0.109 0.127	 [0.796 , 0.373]	-0.081 0.159	 [0.758 , 0.408]	**Table 6.36**
H7e	avg alter effect	-0.317 0.540	 [0.922 , 0.362]	-0.222 0.587	 [0.884 , 0.422]	-0.139 0.486	 [0.877 , 0.492]	-0.719 0.694	 [0.962 , 0.263]	**Table 6.36**

	Goodness of fit	**Self-transcendence**		**Self-enhancement**		**Conservation**		**Openness to change**	
	statistics:	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]
	GOF (outdegree)	0.291 0.304	*** [40 / 28]	0.289 0.300	*** [39 / 27]	0.290 0.298	*** [42 / 28]	0.280 0.312	*** [39 / 25]
	GOF (savings)	0.264 0.250	*** [40 / 29]	0.276 0.276	*** [39 / 29]	0.280 0.263	*** [42 / 31]	0.281 0.271	*** [39 / 29]
	GOF (spending)	0.323 0.311	*** [36 , 27]	0.333 0.306	*** [36 , 27]	0.321 0.305	*** [36 , 24]	0.315 0.300	*** [36 , 27]
	GOF (donations)	0.345 0.279	*** [41 , 34]	0.311 0.265	*** [40 , 33]	0.305 0.248	*** [38 , 31]	0.315 0.246	*** [42 , 37]
	GOF (overall)		[62 , 37]		[61 , 36]		[62 , 36]		[60 , 36]

$^{***}p < 0.01$, $^{**}0.01 < p < 0.05$, $^{*}0.05 < p < 0.1$, $^{\dagger}p < 0.1$

3.6 Discussion

From adolescence to adulthood, most people need to constrain their expenditures according to a limited budget. Therefore, teenagers need to learn how to manage- and allocate their finacial resources effectively. Applying a wide range of strategies, parents have a considerable and sustainable influence on the financial decision making of their teenagers. However, their influence in shaping the school environment of their children is very limited. While they can choose their community of residence and have full discretion in selecting the schools their children will attend, they have very few possibilities to co-determine the compositions of classes. Surprisingly, teenagers' decisions on financial resource allocations have not

yet been investigated in the dynamic context of social networks in the school environment. Our findings confirm that adolescents' money allocation priorities are subject to change, insofar as those are instrumental in achieving desirable outcomes. We propose a framework, describing how behavioral changes in the generic money allocations of spending, saving and giving are linked to unique sets of motivational goals, such as the expression of desirable lifestyles, the maintenance or enhancement of their self-concept, or the realization of social rewards for compliance with norms. Our findings further confirm that changes in money allocation priorities are not implemented if adolescents are lacking the confidence in their abilities to enact behavioral changes that are necessary to achieve desired outcomes. We propose another framework describing how a specific set of abilities contributes to adolescents' self efficacy for the accrual of savings via constraints in their spending allocations.

3.6.1 Which are the motivational goals underlying financial decision-making practices?

According to our findings, the motivations for adolescents to deplete savings or charity allocations to facilitate shifts in consumption patters are threefold.

First, our findings suggest that teenagers are intrinsically motivated to increase their money allocations to spending through their need for novelty, stimulation [McAlister and Pessemier, 1982, Venkatesan, 1973], as well as their emphasis on acquiring information [Hirschman, 1980]. On the one hand, conforming consumption patterns including familiar brands may not stimulate sufficient levels of arousal, in which case teenagers switch to spending patterns reflecting non-conforming lifestyles. On the other hand, adolescents may want to switch brands to determine the true value of brands not recently purchased. We use the term variety-seeking consumption for shifts in spending patters of this nature. Second, we also find evidence that increases in money allocations to spending are triggered through teenagers' desire to express individuality - a proclivitiy, for which we use the term self expressive consumption. According to [Fromkin and Snyder, 1980], social pressure for conformity creates the need to express uniqueness, e.g. through possession of commodities that are scarce or unavailable to others. Third, we find that teenagers' decisions to increase money allocations to spending are also motivated through their need for affiliation [McAlister and Pessemier, 1982] and harmony [Sherry Jr, 1983] in social systems. On the one hand, their need for affiliation may lead teenagers to imitate changes in spending patterns of their peers. On the other hand, their consumption patterns might be a reflection of their desire to maintain harmony in social groups. Both are tendencies, for which we use the term social consumption.

Similar to the motivations for adolescents to alleviate spending allocations, we hypothesized that the motivations for them to increase the financial resources entrusted to charitable organizations [Sargeant, 1999] are threefold. In the following paragraphs, we discuss each of the three motivations - altruistic, instrumental and agonistic - in turn [Sherry Jr, 1983].

First, we find evidence on altruistic motivations for teenagers' allocation of financial resources to help friends in need. On the one hand, benevolence values might trigger feelings of cognitive dissonance in teenagers with abundant lifestyles if they compare themselves with friends in financial distress. On the other hand, universalism values and the belief in a just world might be threatened if adolescents witness serious hardship, and thus trigger their motivation to increase money allocations to charity donations [Miller, 1977]. Second, we find evidence on instrumental motivations for teenagers to reallocate financial resources to donations. For adolescents with the desire to express their individuality, allocating money to charitable organizations might be instrumental to communicate non-conforming lifestyles. However, our findings do not provide evidence on agonistic motivations for teenagers to allocate money to charity. It appears that teenagers do not see charity donations as valid instruments for them to elevate their social status [Haggberg, 1992, Sherry Jr, 1983, Schwartz, 1967].

Most teenagers live in a reality where financial resources are limited, and increases in money allocations to spending or donations must be compensated by decreases in money allocations devoted to savings or other purposes. Our findings are an accurate reflection of both hypothesized motivational frameworks [Schwartz et al., 2012, Bilsky and Schwartz, 1994]. We observe that teenagers prioritizing self-transcendence values - such as universalism and benevolence - are likely to deplete financial resources devoted to savings in order to give money to charitable organizations. Likewise, adolescents emphasizing conservation values - such as tradition, conformity and security - are likely to fund their social consumption lifestyles with money from savings. Lifestyles of teenagers in pursuit of openness values - such as self-direction and stimulation - are characterized by variety seeking consumption and instrumental charity donations, for which they are also likely to deplete savings. However, adolescents emphasizing self-enhancement values are not likely to use savings to fund their conspicious consumption lifestyles.

3.6.2 How are teenagers reacting to social norms regarding financial decision-making practices?

Previous literature on social normative behavior assumes that social norms are situation dependent and thus may be triggered by contextual cues. Additional assumptions propose that all members of a particular social system are equally subject to the social norms, which have evolved therein, and that these social systems do not change over time [Cialdini and Trost, 1998]. However, social norms do not necessarily spread across an entire organizational focus, but instead, their diffusion might be limited by the boundaries of communities [Algesheimer et al., 2005]. Thus, adolescents can not only choose the social environment, in which they feel most comfortable, but their chosen commmunities are also constantly evolving. [Kindschi et al., 2019b] found that among other determinants, teenagers' values have a strong impact on people's friendship selection. In this article, we assume that teenagers can not only choose acceptable norms by selecting their friendship network structure based on their values, but also shape the social norms in their chosen friendship circles.

We have strong reason to assume that norms prescribing money allocations to charitable organizations are forming in friendship circles. The results consistently show that similarities on value dimensions, which are shown to be conflicting - particularly on self-transcendence vs. self-enhancement values [Kindschi et al., 2019b] - are considered for friendship selection. Thus, the communities formed in friendship networks are likely to prioritize self-transcendence or self-enhancement to similar degrees. Since behavioral expressions of self-transcendence values are exclusively focused on money allocations to charitable organizations, equivalent norms are most likely to emerge in communities prioritizing self-transcendence over self-enhancement. However, it seems that the corresponding contextual cues do not trigger them. Conversely, social norms prescribing specific allocations of financial resources to spending or savings are more likely to emerge in communities prioritizing self-enhancement over self-transcendence. Our findings indicate that the corresponding norms are triggered in friendship networks. On their journey to find- and validate their optimal money allocation priorities, or to understand the corresponding social meaning [Festinger, 1954] teenagers appear to fully rely on the judgement of their friends [Lorenz et al., 2011]. The implication is that once social norms on whether to prioritize spending or savings are formed in friendship networks, teenagers are likely to comply, and might eventually even internalize the corresponding norms. Parents should be encouraged to embrace their roles as socialization agents and put in more effort, given that teenagers seem to select friends with similar money allocation priorities.

3.6.3 Are teenagers' expectations regarding the self-efficacy of financial decision making affected by their abilities?

Figure 3.4 summarizes our findings in a framework based on goal directed action [Bagozzi and Dholakia, 1999, Bagozzi, 2007] and self efficacy theory [Bandura, 1977]. Our results confirm the expectation that adolescents find it difficult to cut back on a given consumption level, as stimulated by their lifestyles [Giddens, 1991]. Adolescents in possession of certain abilities are more capable to shift financial resources to savings, while teenagers lacking these abilities are likely to allocate money to spending. These abilities include teenagers' self-control, their cognitive performance as well as their time preferences, as measured by their ability to delay gratification. In line with the arguments in [Bucciol, 2012], forward looking teenagers strategically set money aside to eliminate temptations irrespective of their level of self control. This implies that being intrinsically motivated is not a sufficient condition for teenagers to shift their financial decision making priorities in favor of savings. Teenagers have to understand the importance of acquiring self-control, cognitive abilities, and skills that are necessary to avoid- or resist temptations.

But what about the well established positive impact of financial literacy on savings allocations? [Lusardi et al., 2010] found that cognitive abilities and time preferences can be used to predict financial literacy. Both factors increase teenagers' confidence in their capacity to eliminate or resist temptations to spend their financial resources and accumulate money in savings accounts instead. However, in combination with these abilities, financial literacy does not impact the confidence of teenagers to accumulate savings through the limitation of consumption, but rather counteracts their tendency to entrust money to charitable organizations. Thus, teenagers do not need to be literate or possess abilities increasing their confidence to be able to give money to charity, as long as they are motivated to do so. Moreover, efforts to introduce financial literacy in the curriculum at schools have no impact on teenagers' self efficacy to manage their financial resources responsibly. Instead, it appears that the tools and methods used to educate financial literacy are more effective in facilitating individualistic practices of financial decision making.

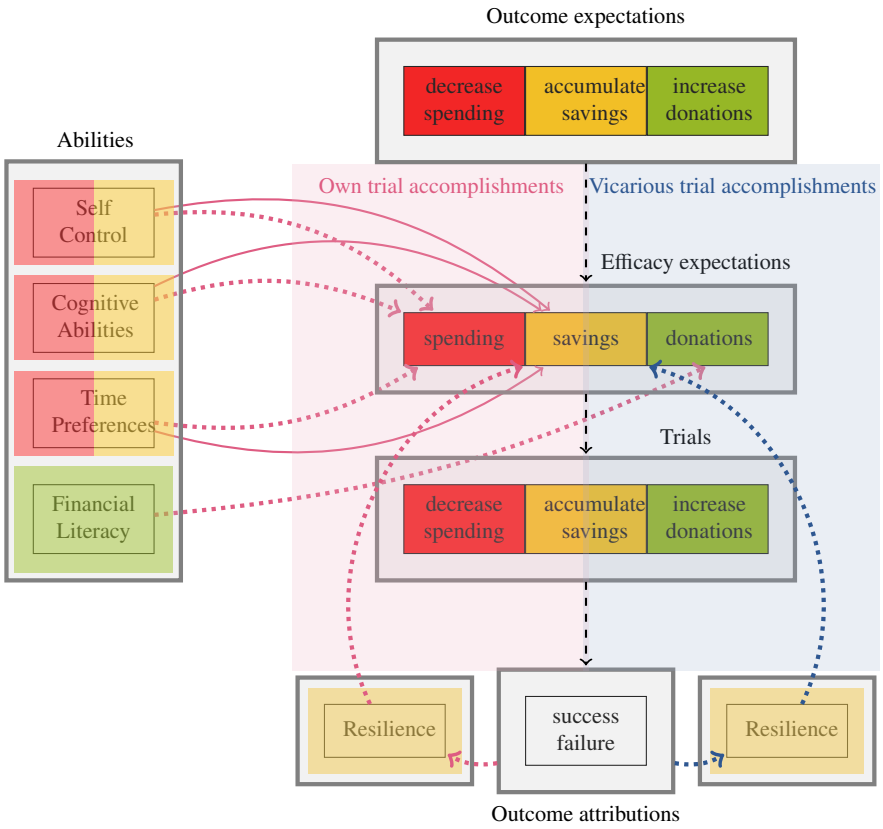

Figure 3.4: *Framework of goal directed action [Bagozzi and Dholakia, 1999, Bagozzi, 2007] adapted to the theory of self efficacy [Bandura, 1977] summarizing results from Tables 6.22, 6.23, 6.24, 6.28, 6.29, 6.30, 6.31, 6.32, 6.33, 6.34, 6.35 and 6.36 of the Appendix*

Arrows: Dashed type ⇢ arrows represent core processes based on goal directed action; Regular type → arrows indicate positive impacts of ***abilities*** *on self efficacy in trials to allocate money to* ***donations****,* ***savings*** *or* ***spending****; Dotted type ⇢ arrows indicate negative impacts; Color indicates whether self efficacy is affected via one's* ***own trial accomplishments*** *or* ***vicarious trial accomplishments***

Boxes: In the process of forming ***outcome expectations****, intentions for priority changes in financial decision making are formed. Social norms [Cialdini and Trost, 1998], emphasis on consonance between financial decision making and values [Schwartz et al., 2012], or desirable lifestyles [Giddens, 1991] are driving forces underlying the formation of outcome expectations. Colors indicate motivations to shift money from* ***consumption*** *to* ***savings*** *or* ***donations****, as outcome expectations are formed under the restriction that financial resources are limited.* ***Abilities*** *represent time preferences, self regulation- and cognitive abilities. Colors indicate the degree to which these abilities are affecting* ***efficacy expectations*** *in general or in specific trials to shift financial resources from* ***consumption*** *to* ***savings*** *or* ***donations****.* ***Efficacy expectations*** *emerge from a process, which evaluates the expected outcome of performing concrete actions with given means for enactment.* ***Trials*** *represent specific actions, which are performed to shift money from* ***consumption*** *to* ***savings*** *or* ***donations****, as indicated by colors. In the process of* ***outcome attributions****, realized outcomes - such as having successfully resisted or eliminated temptations of* ***consumption****, having accumulated* ***savings****, having entrusted financial resources to charitable* ***donations*** *- or failures in corresponding trials are not attributed to one's own abilities, but rather to a lack of effort or to chance [Dweck, 1975, Langer, 1975]*

Self efficacy theory [Bandura, 1977] suggests that changes in financial decision making are based on teenager's expectations that the corresponding decisions can be successfully enacted. In their trials to enact the decision to save money, adolescents can attribute the success in resisting temptations or eliminating enticing consumption alternatives to fortuitous circumstances, to the effort they put in the

trial, or to their abilities. According to our findings, resilience can be seen as the ability to attribute the surrender to temptations, or the failure to eliminate them to a lack of effort or to chance [Dweck, 1975, Langer, 1975]. As a consequence, the accrual of resilience happens in consequtive feedback loops, specifically through the self efficacy depending on the outcome of trials to allocate money to savings.

According to our findings, teenagers' resilience - as reflected in their willingness to put more effort in future trials - is not alleviated through success, as they don't seem to care about why they were successful. On the contrary, our findings imply that failure is an excellent teacher, motivating teenagers to draw on their experience to accumulate information about all possible circumstances leading to failure and put in more effort in future trials.

Surprisingly, compared to experiencing outcomes of their own trials to put money aside, the effects are even more pronounced, if trial accomplishments are experienced vicariously. On this path, the accrual of resilience also happens in consequtive feedback loops, depending on the outcomes of friends' trials to shift financial resources to savings. Teenagers' relationships to their friends are very strong, as they seem to experience their friends' successes and failures as their own [Smith and Rose, 2011]. Celebrating their friends successes without asking why, teenagers' willingness to amplify their efforts to accumulate savings is not increased by witnessing their friends successfully resisting or evading temptations. Instead, teenagers seem to be particularly motivated to use the collective experiences- and all insights that can be derived from their friends' failures to put in more effort in their own future trials.

3.7 Limitations

As pupils are nested in school classes representing unique organizational foci, which are themselves nested in distinct contexts of specific schools, the structure of the data we collected from the participants in our study is inherently hierarchical. Therefore, teenagers' utility functions may have unique compositions. Consequently, the sets of attributes adolescents consider to select friends or to adjust their behaviors should be subject to class-specific restrictions according to how specific attributes are emphasized or promoted in the corresponding organizational foci. For the sake of simplicity, we assume identical compositions of utility functions for pupils across classes. However, one might capture the heterogeneity in the composition of effects that contribute to teenagers' utility functions through the application of restrictions that prescribe distinct utility functions according to the specific groups in the hierarchical data structure.

Furthermore, an illustration of our findings across school classes in Figure **??** of the Appendix identifies considerable heterogeneity regarding the tendency for adolescents in different school classes to comply with social norms regarding financial decision making. Thus, we call on further research to investigate how the heterogeneity in teenagers' susceptibility to social norms on the micro-level can be explained by properties emerging on the macro-level of organizational foci. Random coefficient multi-level analyses could be used to capture such heterogeneity in adolescents' compliance with social norms regarding money allocation priorities on the individual level.

Finally, the composition of adolescents' utility functions for the selection of friends as well as the adaption of their behaviors might not only depend on the unique contexts of organizational foci, but also on the cultural context. Even though a comparison across countries is not the primary objective of this study, correspondingly differentiated results are available on request. Insights from further research, cross-validating our findings in different countries would provide substantial contributions to a more comprehensive understanding of a culture's impact on the composition of teenager's utility functions.

3.8 Conclusions

We conclude that future research should not only investigate the heterogeneity in utility functions - prescribing distinct sets of attributes for teenagers to evaluate changes in their network structures and behaviors across classes - but also the unobserved heterogeneity across individuals. Further research cross-validating our findings in other countries would also make substantial contributions on the road to a more comprehensive picture about the socialization of adolescents' financial decision making across countries with different cultural orientations. Moreover, further research is needed to investigate how norms regarding the allocation of financial resources emerge and evolve in different types of social systems such as networks of advice- or trust relationships.

Chapter 4

Finding Social Support in Adolescent Friendship- and Advice Networks

Abstract

Having access to social support that is tailored to their specific needs is vital for adolescents in the process of their transition into adulthood. Existing literature provides considerable evidence for an independent and significant impact of social support on life satisfaction. While teenagers are building their self identity, they are encouraged to explore different paths in love, work and worldviews. To avoid social exclusion, teenagers may be forced to comply with various norms dictating appropriate behaviors. Thus, finding social support that is tailored to their specific needs is crucial for teenagers. The nature and effectiveness of social support from friends and advisors has been studied intensively in previous research. Surprisingly, the dynamics in corresponding networks as potential sources for social support have received little attention. In this article, we introduce a framework focused on the dynamics and nature of friendship- and advice networks, in which unique forms of social support can be found. Drawing on stochastic actor-oriented network models, we analyze 73 friendship- and advice networks of adolescents. Our findings provide insights how teenagers can elevate their life satisfaction through the selection of friends and advisors with a good match in attributes, which are salient for the respective relationship types. Implications for structural properties of friendship and advice networks are discussed.

Keywords: Dynamic social network analysis, friendship, advice, homophily, social norms, financial decision making, values, self monitoring, adolescents, school classes

Publication note: This article is a work in progress. A version of this article is ready for submission to Network Science. Co-authors of this article are Alexander Ehlert, Jan Cieciuch, Eldad Davidov, Heiko Rauhut, Claudio Juan Tessone and Rene Algesheimer.

4.1 Introduction

Adolescents need to understand the importance of building friendship- and advice networks, as the unique forms of social support each network provides may be tailored to the specific needs emerging in their situations. Teenagers in a majority of cultures in industrialized countries are socialized to delay traditional markers for their transition into adulthood such as leaving school or completing higher education, becoming self-sufficient by starting a full-time job [Jensen, 2004], leaving the home of their origin, getting married, and becoming parents [Shanahan, 2000, Arnett, 2000].

Teenagers experience a period with frequent changes in every aspect of their lives, as various paths in love [Feiring, 1999, Collins, 2003], work [Moschis and Churchill Jr, 1978, Olshavsky and Granbois, 1979], and worldviews [Schwartz et al., 2012] are explored. Meanwhile, they are heavily preoccupied with finding out who they are, as they are building their self-identity [Turner, 1982, Turner, 1985] through the formation of friendships [Wright, 1984, Clark, 1981, Clark and Mills, 1979] as well as the social validation of worldviews and values [Schwartz et al., 2012].

Thus, having access to social support from peers is essential for teenagers to cope with the changes they experience during this time. Friends with a strong match in their self-identity are likely to face similar obstacles or crossroads and can thus provide better social support compared to friends, who are entirely different. Likewise, exchanging knowledge or advice and collaboration in teams are forms of social support, which are more valuable if collaborators have similar preferences regarding teamwork.

Adolescents' need for social support [Halbesleben, 2006, Ray and Miller, 1994] and affiliation [McAlister and Pessemier, 1982] determines the degree to which they fear social exclusion [Mead et al., 2010, Juvonen and Graham, 2014, Boivin et al., 1995, Stormshak et al., 1999, Wright et al., 1986], which is a form of bullying that is not uncommon in school classes [Juvonen and Graham, 2014, Boivin et al., 1995, Stormshak et al., 1999, Wright et al., 1986].

Most forms of bullying are categorized as direct or indirect [Lagerspetz et al., 1988]. Direct forms involve physical aggression or threats of intimidating, humiliating, or belittling someone in social settings. Indirect forms include spreading of rumors and network structure manipulations such as social exclusion [Crick and Grotpeter, 1995], which is designed to damage or deflate the targets' social reputation. Indirect forms are concealing the identity of the source [Björkqvist et al., 1992] such that the bully is able to use the social network as an instrument or vessel [Xie et al., 2002]. Bullying is rarely targeted randomly. The most common targets are teenagers, who are socially isolated, have special conditions, physical characteristics, or display nonnormative patterns of behavior, which set them apart from their peers in social networks [Wright et al., 1986].

Teenagers deviating from norms of social consumption might be regarded as selfish and thus excluded from the group. If they are not stimulated by variety seeking and refuse to spend money on new fashion trends or products with new features, adolescents cannot participate in discussions or social activities centered around such objects. In social groups, where membership can be expressed through specific products or brands, teenagers who do not feel the need to express themselves through consumption and refuse to spend money on such items might be excluded.

In situations such as these, teenagers are less vulnerable and thus less attractive as targets of bullies, if they remain socially connected. Moreover, if they are nevertheless selected as targets, functional strategies such as maintaining access to social support [Halbesleben, 2006, Ray and Miller, 1994] are vital for teenagers to cope with problems such as these, while dysfunctional strategies such as denial or repression could entail fatalistic attitudes that lead to withdrawal [Frydenberg and Lewis, 2000] and ultimately result in burnout [Maslach, 2017].

Existing literature is particularly rich on the respective effectiveness of social support, which is provided by various sources. Spouses, friends, or family members can offer emotional support, trigger memories of personal accomplishment, and thus lower the likelihood of withdrawal. Conversely, coworkers and supervisors can offer instrumental support such as advice on how to reduce demands at work, or sharing responsibility for tasks and thus lower the likelihood of exhaustion [Halbesleben, 2006, Ray and Miller, 1994]. Surprisingly, research on the dynamics in different types of social networks, their unique nature, as well as the corresponding potential to provide social support is remarkably thin.

Thus, in the current study we will investigate the emergence and evolution of different social network types, as well as their distinct nature based on various selection criteria, which are salient for the corrsponding type of social networks. The paper is structured in the following way: We will begin with our theoretical framework and hypotheses, followed by a description of our data and variables in the model. Next we will present the results, and finalize with concluding remarks.

4.2 Theoretical Framework and Hypotheses

People's characteristics and behaviors are often attributed to some essential aspect of their personality or self identity. Driven by the motivation to enhance their self-concept, to reduce uncertainty or validate their subjective beliefs, values or behavior, self-categorization theory [Turner, 1982, Turner, 1985] suggests that people socially categorize themselves and others into ingroup and outgroups. People cognitively represent the defining and stereotypical attributes of groups in the form of prototypes. Having been constructed and committed to memory, prototypes are modified depending on features of the immediate and salient social interactive context [Hogg and Terry, 2000, Fiske and Taylor, 1991].

Thus, through prototypes that are shared by people in the same groups, social categorization determines both normative behavior and the dynamics in social network structures. On the one hand, in the process of choosing their affiliations, people are attracted to peers that are similar to these prototypes. [McPherson et al., 2001a] define the principle of homophily as the tendency for relationships to emerge and persist between people that are alike. On the other hand, in the process of validating their cognitions and behaviors, people embedded in the same groups are exposed to similar social information. Thus, homophily is an important key to the operation of social systems. There is voluminous empirical evidence for the pattern of homophily [McPherson et al., 2001a]. Depending on the context in which it occurs, it can take various forms, and depend on many attributes.

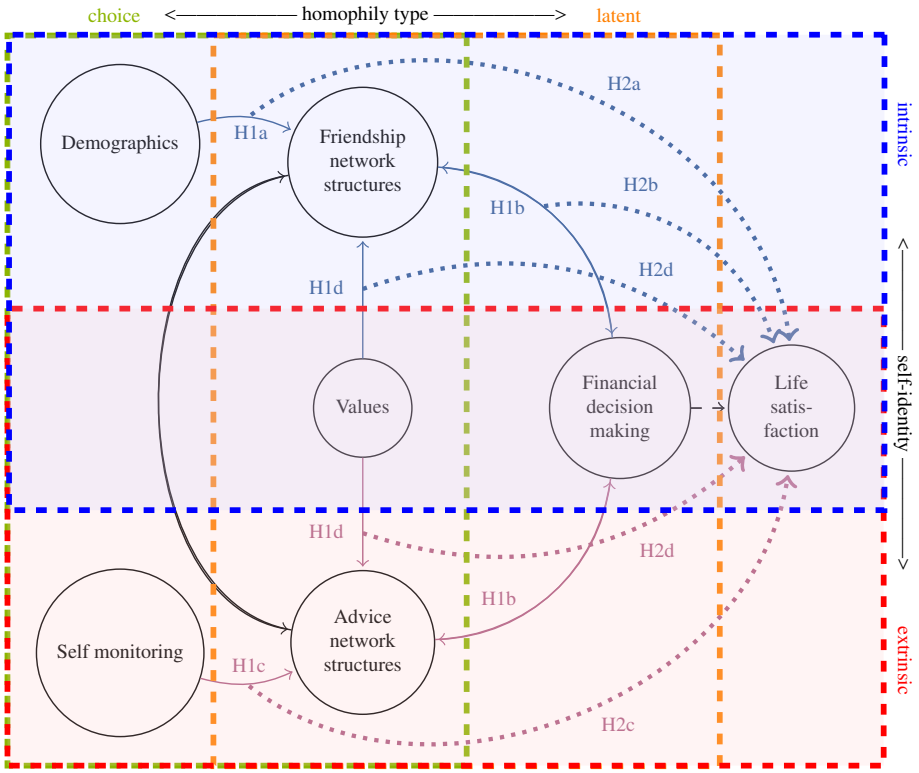

Figure 4.1: *Theoretical framework and hypotheses in the dynamic context of social networks:*

Colors of arrows indicate the type of relationships in Advice Networks and Friendship Networks
Regular unidirectional arrows indicate different forms of choice homophily in − > friendship networks and − > advice networks
Regular bidirectional arrows indicate different forms of latent homophily in co-evolutions between behavioral patterns and < − > friendship networks or < − > advice networks and between friendship- and advice networks < − >
Dashed unidirectional arrows indicate effects from evolving behavioral patterns on life satisfaction
Dotted unidirectional arrows indicate interactions between different forms of homophily and life satisfaction in ···· > friendship networks and ···· > advice networks

As shown in Figure 4.1, our framework is built on the distinction between different types of relationships. The environments from which adolescents draw- and evaluate information to form such relationships are referred to as organizational foci [Feld, 1981]. They are defined as social, psychological, legal, or physical entities around which joint activities are organized. Such foci represent pools of peers, with whom teenagers can initiate and maintain different types of relationships. On the one hand, relationships are intrinsic, if they become part of people's self-concept themselves, and thus create a self sufficient, communal relationship, in which people are directly concerned with the well-being of the partner. On the other hand, relationships are extrinsic, if they are instrumental in facilitating the achievement of desirable goals or the enactment of corresponding behaviors that are necessary to achieve such goals [Wright, 1984, Clark, 1981, Clark and Mills, 1979].

According to our framework, teenagers form ties to peers based on attributes they possess. The taxonomy of salient dimensions of homophily [McPherson et al., 2001a], classifies attributes according to their endogeneity. On the one hand, we are using the term "choice homophily" to describe the tendency to affiliate with people that are similar on ascribed attributes such as demographics [Marsden, 1987, Shrum et al., 1988, Fischer, 1982, Feld, 1982] and inherent personality traits such as self-monitoring [Snyder and Copeland, 1989, Kilduff and Day, 1994, Mehra et al., 2001]. On the other hand, we are using the term "latent homophily" for the tendency to affiliate with people that are similar on behaviors [Steglich et al., 2010b, Knecht et al., 2010, Ellwardt et al., 2012, Haye et al., 2013, Solish et al., 2010, Friemel, 2012], whereby the corresponding similarity may also be the result of interpersonal influence. The overlap between these categories creates an area for attributes such as values, which can be seen as having both an invariant [Verbrugge, 1977, Kalmijn, 1995] and endogeneous nature [Kindschi et al., 2019b].

In the following sections, we introduce friendship- [Bukowski et al., 1994] and advice networks [Agneessens and Wittek, 2011] as representatives for each type of social networks and state our expectations on a.) the salience of these attributes for teenagers' selection of friends and advisors and b.) how friends and advisors selected based on similarity on these attributes affect teenagers' life satisfaction.

4.2.1 Network selection dynamics in friendship networks

Why are teenagers forming friendships with their peers in order to spend more time with them? Social comparison theory [Festinger, 1954] proposes that people have an inherent need to validate cognitions and behaviors. Teenagers need to reach out to their peers to obtain more comprehensive information for validation, as they cannot derive sufficient insights by considering their own past experiences.

Apart from social validation, [Wright, 1984] suggests that rewards of friendships are perceived in terms of their self referent implications. Friends have ego support value, if they are encouraging and help to maintain an impression of one's competence. Friends with self affirmation value are regarded as behaving in characteristic ways that facilitate the expression and recognition of more important and highly valued attributes of one's self-concept. If they have stimulation value, friends are interesting, stimulating and fostering an expansion or elaboration of one's knowledge and perspectives. Friends with security value are disinclined to behave in ways that would betray trust, cause embarrassment, draw attention to points of weakness and self doubt, or otherwise threaten the integrity of one's self-concept - a quality, which is necessary for friendships to evolve [Kelvin, 1977]. Friends with utility value are expressing a personalized interest and concern through their helpfulness and cooperation in meeting one's goals and enacting behaviors that are instrumental to achieve such goals.

Structural properties of friendship networks

Are teenagers reciprocating friendship nominations or encouraging their friends to meet and spend more time together? [Krackhardt and Kilduff, 1999, Vaquera and Kao, 2008, Freeman, 1992] argues that people generally expect positive affective relationships such as friendships to be mutually balanced in terms of social capital [Coleman and Cross, 2000], irrespective of whether or not such reciprocity exists. [Festinger and Hutte, 1954] argue that people experience feelings of uncertainty or instability, if they perceive friendship relationships to be unbalanced. Thus, adolescents are motivated to induce balance into their immediate friendship network structures. Although [Clark and Mills, 1979] propose that in communal relationships such as friendships, balance is not required, they concur that the reciprocity in giving a reward in response to a need for the reward is appropriate.

Although teenagers in friendship networks could become less popular, if their capacity to receive links is limited, or if they incur costs when receiving links [Amaral et al., 2000], we expect adolescents with a higher number of existing friendships to be more popular, as preferential attachment [Barabási and Albert, 1999] is consistently found as a significant property in corresponding types of networks.

Gender- and age homophily

Previous literature yields many salient dimensions on which different types of homophily can orrur. Friendships have been shown to be more likely when people are similar in demographic attributes such as race and ethnicity [Marsden, 1987, Shrum et al., 1988], gender [Marsden, 1987], age [Fischer, 1982, Feld, 1982, Marsden, 1987], as well as religion [Verbrugge, 1977], education [Marsden, 1987], and occupation [Kalmijn, 1995]. Most of these attributes are ascribed, as adolescents do not have the agency or flexibility to choose or adapt them. Furthermore, similar to the way friendship relationships can become part of teenagers' self-concept [Wright, 1984, Clark, 1981, Clark and Mills, 1979], all of these attributes are central in the definition of teenagers' self identity.

The fact that children are organized into school classes with peers of similar age levels induces strong homophily, although this tendency was found to be less pronounced in adolescent friendship networks [Shrum et al., 1988]. While [Eder and Hallinan, 1978] observed that children have a pronounced tendency for gender homophily in their friendship networks, as soon as they realize that gender is a permanent part of their personality, [Marsden, 1987] found that people's friendship networks become more mixed with both gender groups, when they reach adulthood. Therefore, we propose the following hypothesis for the impact of demographics on friendship selection.

Hypothesis 8a (H8a)**.** *Friendship relationships are more likely to occur if actors have the same gender and similar age levels in contrast to advice relationships, where gender and age is not relevant.*

Latent homophily based on norms of financial decision making

Given that adolescents have comparatively little life experience, they are often confronted with novel- or ambiguous situations [McAlister and Pessemier, 1982]. Understanding the social meaning of their behaviors [Festinger, 1954] is something teenagers can derive considerable utility from. If certain behaviors are adjusted to the way most other peers are behaving [Lorenz et al., 2011] in specific situations, as they are repeatedly triggered by corresponding contextual cues, they are referred to as descriptive norms [Cialdini and Trost, 1998].

Behaviors, for which general uniformity is emphasized in social groups, are referred to as injunctive norms [Cialdini and Trost, 1998]. They can prescribe or proscribe what most other group members approve or disapprove respectively, if they are triggered by corresponding situational cues. The strength of such norms depends on the degree to which teenagers' desire group affiliation [McAlister and Pessemier, 1982], the degree to which they fear social exclusion [Mead et al., 2010], as well as the cohesion within their social groups. Often, the mere presence of such norms is sufficient to enforce normative behavior [Cialdini and Trost, 1998].

Social norms are successful, if they are adaptive in promoting survival related behaviors [Schaller and Latané, 1996, Latané, 1981, Latané et al., 1994], without unduely restricting the freedom or self-direction of group members [Algesheimer et al., 2005, Levav and Zhu, 2009]. Maladaptive social normative behaviors are unlikely to survive in the presence of competing behaviors, which are useful for groups to manage their identities, or for their members to maintain or enhance their self concept. If they are accepted and internalized, injunctive or descriptive norms become subjective. As a result, the corresponding normative behaviors are integrated into the self concept, and teenagers show conformity even in the absence of other group members or effective incentive mechanisms.

Practices of financial decision making are part of teenagers' daily lives. Thus, they are likely to be integrated in lifestyles, which teenagers use to express their self identity [Giddens, 1991]. Moreover, practices of financial decision making are also likely to be part of prototypes, which teenagers use for self categorization into in- and outgroups [Turner, 1982, Turner, 1985]. Thus, specific situations might trigger social normative behaviors that capture particular practices of financial decison making [Hogg and Terry, 2000, Fiske and Taylor, 1991]. If accepted and internalized, corresponding financial decision making practices may become part of adolescents' self concept. [Kindschi et al., 2019a] found that social norms regarding practices to allocate financial resources to spending or savings are highly effective in adolescent friendship networks. Assuming that adolescents intend for communal friendship relationships to become aspects of their self identity, we hypothesize that teenagers want to select their friends on the basis of financial decision making practices. In contrast, assuming that teenagers do not aim for instrumental relationships to be part of their self identity, we hypothesize that social normative behaviors are not used as criteria for the selection of advisors.

Hypothesis 8b (H8b)**.** *In contrast to advice relationships, friendship ties are more likely to emerge and persist if teenagers are similar on social norms regarding financial decision making.*

4.2.2 Network selection dynamics in advice networks

Organizational foci are equally driven by instrumental goals such as members' motivation of getting ahead or performing their function as well as social goals such as being liked or being looked up to. Motivations such as these can have important implications for the exchange of advice. There are two major perspectives, which are capable to explain the evolution of advice exchange networks [Agneessens and Wittek, 2011].

Structural properties of advice networks

The social capital perspective [Adler and Kwon, 2002] builds on the assumption that ties to other people can provide access to valuable resources and other services. Therefore, people are likely to "invest" in social relations by creating and maintaining ties to resourceful peers [Sparrowe et al., 2001]. According to this perspective, people are driven by reciprocity and equity norms prescribing that they are not supposed to benefit from their peers' benevolence without providing an appropriate compensation in return. Such reciprocity can take different forms. First, repayment can be effectuated immediately or delayed. Second, direct reciprocity refers to scenarios where resources or services are repaid to the original benefactor. Repayment to any another member of the social system is referred to as generalized reciprocity. Third, the form of repayment can be the same or different compared to the resource or service received.

The social status perspective assumes people's concern for social status - defined as being respected and admired by others [Krackhardt, 1990] - is strongly motivating people's behaviors and decisions. According to this perspective, people do not only care about their relative position in social systems [Huberman et al., 2004], but are striving for social status [Loch et al., 2001] as a means to improve their relative position. People can improve their relative social status by giving advice, as well as by refraining from seeking advice. The social status perspective further assumes that advice obtained from people with a higher social status is considered more valuable than advice obtained from people with lower social status.

Homophily in advice networks

[Labun et al., 2016] find an abundance of evidence on the respective impact of individual differences in personality on the attainment of power and status [Judge et al., 1999], the emergence of leadership [Judge et al., 2002], and the performance of employees [Mehra et al., 2001]. A construct with a well documented validity to measure individual personality differences in situations such as these is the degree of people's self-monitoring capacities [Snyder and Copeland, 1989, Kilduff and Day, 1994, Mehra et al., 2001]. This capacity affects how people perceive and shape their social environments, and the ways they express themselves in social contexts [Gangestad and Snyder, 2000].

On the one hand, people with pronounced self-monitoring capacities exhibit distinct levels of self-regulation. With superior understanding of situational appropriateness and elevated skills for social interaction, they are acting on available cues in their social environment, and thus actively construct, cultivate and maintain favorable public images [Gangestad and Snyder, 2000]. Having a pronounced capacity for self-monitoring, people constantly try to impress others, as they are motivated to win their approval and respect or to enhance their status in organizational foci [Gangestad and Snyder, 2000]. In social situations, people with pronounced self-monitoring capabilities are asking themselves: "Who does this situation want me to be and how can I be that person?". On the other hand, people with limited capacities for self-monitoring are asking this question: "Who am I - and how can I be me - in this situation?" [Snyder and Copeland, 1989], as they are guided from within by their affective states and attitudes. [Snyder, 1987] found that people with high self-monitoring abilities are more successful in acquiring social status [Flynn et al., 2006, Kilduff and Krackhardt, 1994] and more likely to emerge as group leaders [Zaccaro et al., 1991]. Thus, we expect this capacity to be more important for the emergence and maintenance of extrinsic social ties, reflecting social hierarchy and competition as advice relationships do.

Hypothesis 8c (H8c)**.** *In contrast to friendship, where self monitoring is not relevant for selection, advice relationships are more likely to emerge if actors have similar levels of self control-, resilience and social desirability awareness.*

4.2.3 Values and network selection dynamics of friendship and advice networks

On the one hand, values can be a basis for the self selection into organizational foci [Feld, 1982] and thus indirectly limit the pool of peers adolescents have the opportunity to get in contact with. On the other hand, attributes such as values might determine the network position, which teenagers feel most confortable with. Adolescents emphasizing power and social status might feel comfortable in central network positions, while teenagers emphasizing compliance or conformity might be happy in peripheral network positions. In adolescence, values are evolving - as teenagers were found to adjust their values according to how they are pronounced with their peers [Kindschi et al., 2019b] - but also representing attributes, which are salient for the selection of social network affiliations.

Values are defined as motivational guides [Lewin et al., 1951], conceptions [Kluckhohn, 1951], properties of entities [Heider, 1958] or beliefs about the desirability of modes of conduct and states of existence [Morris, 1956, Rokeach, 1973]. [Rohan, 2000] find that value systems need to contain a finite number of universally relevant value types, on which people place relative importance, which are structured according to the motivational goals embodied by each value.

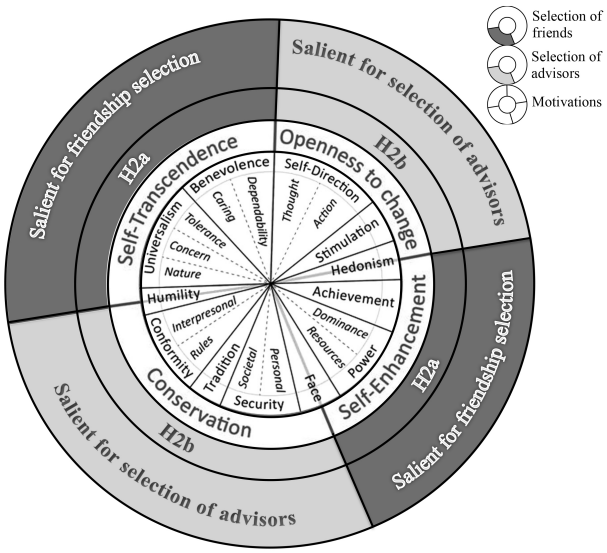

Figure 4.2: *The selection of friends and advisors according to the similarity in motivational goals based on the theory of basic human values [Schwartz et al., 2012]*

Therefore, our framework uses the theory of basic human values, [Schwartz, 1992]. The theory structures value systems in two motivational dimensions, according to conflicts and fundamental human problems. If enacted simultaneously, values on opposite sides of these dimensions create conflict, while the pursuit of higher order values adjacent to each other can be negotiated. In the following paragraphs, we describe each dimension of basic human values "self-transcendence" vs. "self-enhancement" and "conservation" vs. "openness to change", and make propositions about the respective salience for the selection of friends or advisors.

Openness

Values on this dimension are distinguished depending on the importance assigned to "self-direction" and "stimulation". Driven by the intrinsic motivation, as described in the theory of self efficacy [Bandura, 1977, Deci and Ryan, 1975, White, 1959], people who emphasize self-direction are creative or curious, and want to discover things on their own. Furthermore, autonomy in choosing their own goals, as well as independence in interpersonal relationships [Kluckhohn, 1951, Kohn and Schooler, 1983, Morris, 1956], are strong requirements for people in pursuit of self-direction. People who emphasize stimulation want to maintain an optimal level of activation through variety seeking [Berlyne, 1960, Houston and Mednick, 1963, Maddi, 1961, Farley, 1986]. Thus, they search for excitement, novelty, and challenge in life [Deci and Ryan, 1975].

Conservation

Values on this dimension are categorized depending on the degree to which people place importance on "security", "conformity" and "tradition". People who emphasize security, are pursuing safety, harmony, and stability on the individual-, the dyadic- as well as the society level, [Kluckhohn, 1951, Maslow, 1959]. Security values can serve collective interests, in which case people place great emphasis on social order, the reciprocation of favors, and family- or national security. However, security values can also serve individual interests, in which case people highly emphasize their sense of belonging. People who prioritize conformity want to facilitate social interactions by restraining socially disruptive behavior, inclinations or impulses, which might upset or harm those alters or violate social norms [Freud, 1933, Kohn and Schooler, 1983, Parsons, 1991]. Thus, they want to honor parents or elders and place great importance on being obedient, self-disciplined, and polite. Finally, traditions and customs are represented by symbols, religious rites, beliefs, and norms of behavior [Sumner, 1906, Radcliffe-Brown, 1952]. Such norms symbolize a group's solidarity, express its unique positioning, and presumably guarantee its survival [Durkheim, 1964, Parsons, 1991]. Individuals, who prioritize tradition emphasize humility, devotion, moderation, and the acceptance of one's place and role in life, and show respect and commitment for customs imposed by their culture or religion.

Self-transcendence

The values underlying this dimension can be grouped into two distinct sets of values labeled as "benevolence" and "universalism". Driven by the need for positive social interactions [Schwartz and Bilsky, 1987, Kluckhohn, 1951] and affiliation [Korman, 1974, Maslow, 1959], people emphasizing benevolence exhibit concern for the prosperity of people in their immediate social environment. Thus, they emphasize the preservation and maturation of true friendship, and pro-sociality towards people with whom personal interactions are frequent. As a consequence, people who emphasize benevolence want to be helpful-, loyal-, forgiving-, honest-, reliable and trustworthy friends. People in pursuit of universalism goals strive for understanding, appreciation, tolerance for different groups and cultures. Their pro-sociality extends to include the welfare of all people as well as the protection of nature [Maslow, 1959].

Self Enhancement

This dimension introduces the distinction between achievement and power values. People emphasizing ambition or personal success want to demonstrate competence according to internal- [Deci and Ryan, 1975, McClelland et al., 1953] or social- and cultural standards of excellence in order to obtain resources for survival and social approval [Maslow, 1959, Rokeach, 1973, Scott and Scott, 1965]. The objective for individuals who emphasize power is to attain social status [Durkheim, 1964, Parsons, 1991], prestige, and control or dominance over people and resources [Korman, 1974, Schutz, 1958, Allport, 1961, Gordon, 1960]. Thus, they emphasize authority, wealth, social power, social recognition, or the preservation of their public image. The pursuit of social esteem is common for both power- and achievement values. Whereas the demonstration of competence in social interactions is emphasized by achievement values, power values focus on the attainment or preservation of a dominant position within the social system.

We expect that the conflict between self-direction (openness), vs. harmony and conformity (conservation) [Schwartz, 1992] is very important for teamwork and the exchange of advice. Group decisions need compromise and harmony. Therefore, collaboration in teams, where all members place equally strong emphasis on harmony is superior to teamwork in groups, where all members want to make their own decisions and don't care about harmony or conformity. Despite its importance for the collaboration in teams, we expect that the conflict between, leadership (self-enhancement) and pro sociality (self-transcendence) values is not likely to be considered for the selection of advisors. If it was considered, the odds are that groups could end up being unbalanced with a majority of leaders or followers.

Furthermore, we expect that in communal relationships such as friendships, the conflict between leadership (self-enhancement) and pro sociality (self-transcendence) takes precedence. Even though sharing values such as stimulation (openness) and tradition (conservation) can be a good basis for friendships, there is no match compared to the self referent implications, which benevolence, pro sociality or the concern for the welfare of others (self-transcendence) have for friendships [Wright, 1984].

Hypothesis 8d (H8d)**.** *Friendship is more likely to exist if teenagers are similar on self transcendence-, and self-enhancement values, whereas advice relationships are more likely to exist if teenagers are similar on openness to change- and conservation values.*

4.2.4 Homophilous tendencies in the selection of friends and advisors and their reflection in life satisfaction

[Veenhoven and Ehrhardt, 1995] define life satisfaction as the degree to which one judges the quality of one's life favorably. Adolescents can either make this judgement based on the foundation of their own experiences or through social comparison [Festinger, 1954, Diener et al., 1985, Sagiv and Schwartz, 2000].

On the one hand, supporting previous research on friendship relationships in the work environment [Ibarra, 1993], [Markiewicz et al., 2000] and [Avery et al., 2007] found that same sex ties are more engaged, and thus more satisfactory than opposite sex ties. Therefore, we expect that teenagers with a more pronounced tendency for gender homphily to be more satisfied than teenagers that don't show any preferences for same sex friendships. On the other hand, investigating friendship relationships in the work environment, [Avery et al., 2007] found that levels of engagement - and correspondingly levels of satisfaction - are higher among coworkers with similar age levels compared to coworkers with different age levels. Therefore, we expect teenagers with marked levels of homophilous tendencies concerning the age levels of their peers to be more satisfied than teenagers that don't show any preferences for similarity concerning their friends' age levels.

Hypothesis 9a (H9a)**.** *Life satisfaction is positively associated with the tendency to select same sex friends and friends that have similar age levels.*

We hypothesized that teenagers are more likely to use financial decision making practices to select their friends [Kindschi et al., 2019a] rather than their advisors [Wright, 1984, Clark, 1981, Clark and Mills, 1979]. On the one hand, motivations to perform financial decision making practices can be extrinsic, in which case they constitute social norms. As a result, adolescents are performing these practices based on their need for social harmony and -affiliation [McAlister and Pessemier, 1982] or based on their fear of social exclusion [Mead et al., 2010]. However, teenagers will only use normative financial decision making practices to select their friends, if each of the following conditions is met. First, social normative behaviors are readily observable, and thus allow teenagers to distinguish between in- and outgroups [Turner, 1982, Turner, 1985]. Second, the majority of ingroup members possess highly valued attributes, which teenagers cannot readily observe, but which they expect to be strongly associated with the social normative behaviors they observe. Third, teenagers are triggered to attribute the performance of normative financial decision making practices, and prefer to do so internally [Cooper and Fazio, 1984]. As a consequence, performing extrinsically motivated financial decision making practices might trigger cognitive dissonance [Festinger, 1962] - a state, which we expect to be comparable to a mood, and thus negatively affecting teenagers' life satisfaction [Schwarz and Clore, 1983].

On the other hand, motivations to perform financial decision making practices can also be intrinsic. Being internalized in teenagers' self identities, compliance with social norms such as these is not likely to trigger cognitive dissonance - and thus affect life satisfaction.

[Kindschi et al., 2019a] found that social norms regarding practices of spending and saving money - to which adolescents are subject in friendship networks - are highly effective. However, we do not expect that teenagers are using financial decision making practices to select their friends, if these practices have not been internalized in their self identities.

Hypothesis 9b (H9b)**.** *Therefore we expect that similarity in social normative behavior is not affecting teenagers' life satisfaction in friendship networks.*

According to [Kilduff and Day, 1994], high self-monitors are characterized as pragmatic and utilitarian, whereas low self-monitors are described as committed and principled in their respective approaches to relationships. People scoring high on their capacity for self-monitoring refrain from making emotional investments in relationships and strive to maintain flexibility. In contrast, people with lower capacities for self-monitoring are willing to make emotional investments in relationships so that they can be true to themselves. Thus, we expect that advice relationship partners with similar willingness to make emotional investments are more highly satisfied with their lives, whereas the level of life satisfaction is lower among advice relationship partners, whose willingness to make emotional investments is different.

Hypothesis 9c (H9c)**.** *Life satisfaction is positively associated with the tendency to select advisors showing similar levels of self-monitoring.*

We hypothesized that the respective salience of value priorities for friendship- and advice network selection is determined by the principle, which structures values in two dimensions according to fundamental human conflicts [Schwartz et al., 2012]. The hypothesis stating that similarity on the self-transcendence

vs. self-enhancement dimension is fostering friendship, while similarity on the conservation vs. openness to change dimension is facilitating advice relationships, assumes that respective similarity on either value dimension is somehow rewarding in corresponding networks. While friends and family can offer emotional support and trigger memories of personal accomplishment, coworkers and supervisors can offer shared responsibility for tasks as well as suggestions about how to reduce workload [Halbesleben, 2006, Ray and Miller, 1994]. We expect that the respective social support provided by friends and advisors is more rewarding if they are similar on the corresponding value dimensions.

Hypothesis 9d (H9d). *Similarity in self-enhancement and self-transcendence values has a positive effect on life satisfaction in friendship networks, while similarity in conservation and openness to change values has a positive effect on life satisfaction in advice networks.*

4.3 Data and method

Our selection of samples is a result of the goal to find two European countries, which have similar school structures, but represent two societies with largely different values or lifestyles. Figure 1 of the Appendix shows the positions of 76 countries on seven different dimensions of cultural orientations. While Eastern European countries are culturally oriented towards harmony, Western European countries are oriented towards intellectual autonomy and egalitarianism. We selected Switzerland and Poland as representatives for each of the primary cultural groups in Europe. Despite having selected multiple countries, our intention for the current article is not to compare the nature and dynamics in social network structures and their co-evolution with financial decision making norms across countries.

Our study is designed as a longitudinal three-wave panel with three cohorts. In both Switzerland and Poland, we commissioned three surveys starting in October 2015 until December 2016. In three waves, we interviewed pupils, who entered the first- and second cycles of primary education on the 1st and 4th grades as well as pupils, who entered compulsory- or voluntary secondary education on the 7th and 9th grades respectively. Thus, for all pupils participating in the study, the observation period starts at a point, where they are reassembled in new classes and are assigned new teachers, such that overall, they are exposed to a relatively new pool of peers, whom they did not know before.

4.3.1 Samples

In order to study the evolution of social network structures and financial decision making norms, schools can be considered to provide ideal environments for three reasons. First, these processes display considerable dynamics in school classes. The main function of schools is to provide an environment for children and adolescents, facilitating the acquisition of cognitive and social skills, However, schools are also arenas for pupils to observe traits and behaviors of peers and thus validate their own. Second, in the school environment, pupils are encouraged to collaborate and exchange knowledge. Although primary education is still dominated by hierarchically nested class structures, pupils in secondary education are no longer nested in single classes, but are given the option to self-select into performance classes for specific subjects - and are thus to some extent provided with a mirror for workplace environments. Third, being embedded in the regulatory environment of the government, the school environment protects pupils from various external forces, which could potentially co-determine their decisions and behaviors. Following exemplary studies from previous research [Mercken et al., 2010, Steglich et al., 2010b, Knecht et al., 2010, Solish et al., 2010, Ellwardt et al., 2012, Friemel, 2012, Haye et al., 2013], we conclude that this environment can be seen as an ideal context for our study.

4.3.2 Design

The waves in our longitudinal design are representing the number of times pupils were interviewed. The dynamics of the processes under consideration of this study are expected to be highest at the beginning of the group formation process [Friemel, 2012]. Thus, the timing, when surveys were administered to pupils is designed with proportionally increasing time windows between waves of data collection. The longitudinal design is intended to limit the exposure of respondents to surveys, while making sure that all dynamics in the processes under consideration are captured. In both countries, subjects entered our compulsory and voluntary secondary school cohorts at the age of 12 or 13 and left those cohorts at the age of 15 or 16. The sample size and composition is summarized in Table 4.1.

4.3.3 Procedures

All procedures contributing to this work are in compliance with the ethical standards of the relevant national and institutional committees. The surveys commissioned in the various school classes were supervised by trained students. At each wave in each cohort, data was collected during a full school hour of 45 minutes. In order to eliminate method bias, data was collected using the same method across all waves for each pupil. Respondents surveyed in Switzerland were provided with questionnaires in paper and pencil form, while surveys commissioned in Poland were administered online. Pupils and their parents were informed about the design and purpose of the study several weeks before data collection started. Due to different regulations concerning data protection, we used different approaches to obtain parental consent for the participation of Swiss- and Polish pupils in our study. All parents in Switzerland were provided with an opt-out possibility. Out of all 1'193 pupils in the Swiss sample, none of the parents made use of that possibility. In contrast, parents in Poland were specifically asked to opt-in. From a total of 2'743 pupils sampled in Poland, approximately 67% of the corresponding parents provided their consent.

In order to make the school classes in both countries comparable in terms of participation rates, we excluded 86 secondary school classes, where absences in any given wave exceeded 50%, due to the opt-in procedure. The result of this process can be seen in Table 4.1. The sample we used for our analyses includes 73 secondary school classes from Switzerland and Poland.

Table 4.1: **Panel size in Switzerland and Poland**

Country	Wave	Panel			Analysis		
		sites	classes	pupils	sites	classes	pupils
Switzerland	1	8	55	1'183	7	44	890
	2	8	55	1'193	7	44	890
	3	7	44	890	7	44	890
Poland	1	31	105	2'733	6	29	670
	2	29	105	2'743	6	29	670
	3	29	105	2'700	6	29	670

4.3.4 Measures

The aim of this study is to investigate a.) the dynamics and the unique nature of teenagers' friendship- and advice networks, b.) the formation and effectiveness of social normative financial decision making practices in the social context of these networks, and c.) the impact of homophily in the selection of friends and advisors on life satisfaction. In order to investigate these aspects, this study uses the following measures.

Values

Our study uses two versions of the Portrait Value Questionnaire [Schwartz et al., 2012] to collect data on respondents values. These versions only differ in the number of items contained therein. The set of items used in both versions includes 13 items asking respondents to compare themselves to peers described in short statements and to evaluate how similar they are to these peers on a six-point scale ranging from "not similar at all" to "very similar".

Social networks

The friendship network data was collected with a roster design. All names of the pupils in each class were displayed on a list, including those who did not participate in the survey or those absent from the class at the dates scheduled for the waves. Pupils were asked "How strong is your friendship with your classmates?" They responded on a six point scale ranging from "very close" to "no friendship at all". In line with the friendship quality scale [Bukowski et al., 1994], pupils were consistently given instructions to determine the strength of friendship by the proportion of leisure or recreation time they voluntarily spent together, as shown in Section 2 of the Appendix.

For the collection of advice network data, questionnaires also included roster designs, displaying the names of the pupils in each class on a list, including those who did not participate in the survey. Pupils were asked about their conversation partners on school related topics and homework (without specifying

specific subjects): "In the past three months, how often did you contact your classmates to talk about school topics or homework?" As shown in Section 2 of the Appendix, answer options included "never", "rarely", "occasionally", "regularly", "often", and "constantly".

Because the methodology we applied in our analyses is restricted to binary data, all possible thresholds for dichotomization were tested. Cutting off the weighted friendship or advice networks above or below the levels of five or four respectively creates very sparse or dense networks with insufficient network dynamics. Therefore, friendship and advice networks were dichotomized at the cut-off weights of five and four respectively. As a consequence, actors' decisions additionally include situations, where acquaintanceships or relationships based on occasional exchange of advice are upgraded to friendships or relationships based on constant exchange of advice, and not only ties created from non-existing relationships. Likewise, actors' decisions not only include situations, where existing advice- or friendship ties are dissolved completely, but also friendships that are downgraded to acquaintanceships or relationships, where constant exchange of advice is downgraded to occasional exchange of advice.

Financial Endowment Allocations

To test our hypotheses it is important to frame financial endowments as disposable income. Therefore, the scale was positioned in succession of a section on cooperative behavior, which was measured through simultaneous dictator games and incentivized through a lottery. As a result, in the section on financial endowment allocations, pupils were asked how they would allocate their winnings, if they were to be randomly selected as beneficiaries in the lottery. Through the aggregation of items for discretionary expenditures from [Crouch et al., 2007] into broader categories in our questionnaire, pupils were asked to indicate the proportion of their winnings they would allocate to "consumption", "savings", "donations", and "other purposes". The proportions allocated to "consumption" and "other purposes" were paid in direct succession of the survey. The proportion allocated to "savings" was paid out nine months later. To measure time preferences and the ability to delay immediate gratification, pupils were asked how much of their winnings they would sacrifice in order to receive the payment immediately as opposed to nine months later. In scenarios, were pupils wanted to donate financial endowments, they were asked to select one out of four categories: "nature protection", "animal protection", "diseases and handicaps" or "poverty and catastrophes" and then choose one out of three charitable organizations. The proportions of the winnings allocated to "donations" were then pooled and paid out to the charitable organizations chosen by the pupils.

Life Satisfaction

This study is based on the five dimensional satisfaction with life scale [Diener et al., 1985] with a focus on general perceived life satisfaction. Therefore, we use the following single item to measure life satisfaction: "All things considered, how satisfied are you with your life these days". Pupils were given consistent instructions to determine their satisfaction by considering all possible spheres of their lives. The scale on general perceived life satisfaction is shown in Section 2 of the Appendix.

Self monitoring

To measure the capacity to change and adapt the self as a reaction to situational cues of the social environment, this study uses a 10 point scale for self control and self regulation, which was developed by [Tangney et al., 2018]. Pupils were asked to evaluate items including the ability to resist temptations, to break disadvantageous habits, to focus in the presence of distractions, and to regulate impulses. To measure the capacity for positive adaptation in the face of stress or difficulty, this study uses a 10 point scale for resilience, as developed by [Campbell-Sills and Stein, 2007]. Pupils were asked to evaluate items such as the ability to cope with stress or difficulty, to recover from defeat, and to achieve goals in the presence of handicaps. For the measurement of the capacity to detect cues signalling the situational appropriateness of practices in any given social environment, this study uses 16 items comprising the social- and ethical risk dimensions of the domain specific risk taking scale [Weber et al., 2002]. Pupils were asked to evaluate the likelihood according to which they would carry out activities associated with social- and ethical risks. Within the social risk domain, items included the chance that they would stand up for non-conforming tastes, express provocative views, as well as argue and persevere in defending unpopular views. Within the ethical risk domain, items included the likelihood according to which they would steal items from shops, submit someone else's work as their own, forge signatures, withhold information to be revealed or reveal information to be kept secret.

4.3.5 Analytical approach

We are drawing on stochastic actor-oriented network models (SAOMs) to investigate the dynamic processes of network selection and adaption to social normative behaviors within friendship and advice networks. These models were introduced by [Snijders, 2001, Snijders et al., 2010] and implemented in RSiena by [Ripley et al., 2011]. At the core of these models are changes in behavior and network ties between panel waves. On the one hand, behaviors of actors can change over time. Such changes can either be the outcome of actors' characteristics (e.g., actors change behaviors because of attributes they currently possess) or of their peers' characteristics (e.g., actors change behaviors because of attributes their friends or advisors possess). On the other hand, relationships between actors can emerge or disappear in time. Such changes in the network structure can be the outcome of an actor's structural position within the network, (e.g., actors form ties to others because they are friends of friends or give advice to advisors), an actor's characteristics (e.g., actors are attractive because of attributes they possess), or characteristics shared by actors (e.g., actors are attractive because they are similar on specific attributes). In a wide variety of contexts, SAOMs are used to study network dynamics and behavior change [Van de Bunt et al., 2005, Van Duijn et al., 2003, Schaefer et al., 2011] or the co-evolution of networks and actor behavior [Checkley and Steglich, 2007, Burk et al., 2007, Pearson et al., 2006, Steglich et al., 2010b, Lewis et al., 2012].

Estimation procedure

SAOMs are applied to longitudinal behavior as well as complete, directed and longitudinal networks to model changes in behavior and network ties. Although these types of data are measured at discrete waves, SAOMs assume a continuing underlying process with behavior- or network tie changes occurring sequentially. Actors can make decisions regarding their behavior (e.g., increases- or decreases, as well as keeping their current state) or their network ties (e.g., creation or dissolution, as well as keeping the current state). Each individual decision an actor makes is represented by a so-called mini-step, which is modeled by two underlying processes.

First, a rate function determines the order, according to which actors are allowed to make decisions. Using a period-wise constant rate function, we do not assume any difference in the rate of change between actors. Second, the chosen actors evaluate all potential changes in their behavior and network space. Assuming specific dynamics to happen, an objective function including the corresponding parameters is specified, and actors consider how each change in their behavior or network structure would affect their utility regarding these parameters. For factors that are combined in the objective function and thus determine actors' decisions, SAOMs use the term 'effects'. "Homophily" and "Average Similarity" are examples for such effects. If the parameter for average similarity is positive, actors are more likely to adapt their behaviors towards the average expressions of their friends or advisors than to keep their current state or diverge to more extreme behavioral expressions. If the parameter for homophily is positive, actors are more likely to select friends or advisors that are similar on specific attributes or dissolve ties to dissimilar friends or advisors. Thus, actors compare the outcome of the objective function for each behavior- or network state that results from every possible change in behavior or network structure. At the conclusion of each mini-step, the behavior- or network states, which are most likely to be chosen by actors are those with the highest values in the objective functions. In a series of mini-steps connecting empirical observations, the parameters that attach relative importance to the corresponding effects are estimated. The interpretation of parameters estimated in SAOMs is similar to parameters that are estimated in a multinomial logistic regression, where θ is the log odds ratio, as they co-determine the relative likelihood of a mini-step to be realized. For a non-technical introduction to the method, we refer to [Snijders, 2001, Steglich et al., 2006, Snijders et al., 2010].

The capacity to capture the mechanisms that drive behavior- and network change simultaneously is the main reason why we decided to use SAOMs. First, the dynamics of behaviors and networks are conditioned on the first observation. As a result, no assumptions regarding the respective states of equilibrium have to be made. Second, given the multinomial nature of these models, each process can be estimated net of the other.

Model specification

The structural effects we include in our analyses have been selected on the basis of theoretical considerations based on past experience with these models, and based on results from previous studies using this method with similar data [Steglich et al., 2010b]. *Outdegree* determines the average degree, and can be

compared to an intercept in regression analyses. *Reciprocity* $s_i^{net}(x) = \sum_j x_{ij}x_{ji}$ is the tendency of actors to reciprocate ties to each other. The variations of geometrically weighted edgewise shared partners $s_i^{net}(x) = \sum_{j=1}^{n} x_{ij}e^{\alpha}\{1-(1-e^{-\alpha})^{\sum_{h=1}^{n} x_{ih}x_{hj}}\}$ and $s_i^{net}(x) = \sum_{j=1}^{n} x_{ij}e^{\alpha}\{1-(1-e^{-\alpha})^{\sum_{h=1}^{n} x_{jh}x_{hi}}\}$ model situations in which a friend of a friend (an advisor of an advisor) nominates the focal actor as a friend (asks the focal actor for advice) *cyclicality*, as opposed to situations, where a friend of a friend (an advisor of an advisor) is nominated by the focal actor as friend (is asked for advice by the focal actor) *transitivity*. *Indegree popularity* $s_i^{net}(x) = \sum_j x_{ij} \sum_h x_{hj}$ controls for dispersion in indegrees and investigates if somebody who already has a lot of incoming ties is more popular as a target of further nominations for friendship- or advice exchange relationships. *Linear shape* $s_i^{val}(z) = z_i$ controls for the general tendency to change one's financial decision-making priorities. The inclusion of the *quadratic shape* effect, which measures the tendency to change financial decision-making priorities depending on one's current priority for specific allocations of financial resources, could not be empirically justified in our data. As a consequence, we excluded this effect from our analyses.

First, we specify the model with regard to changes in allocations of financial resources. In all analyses that are reported in Table 4.2, models include the *average similarity* effect, as well as *effects from satisfaction*. The former effect measures the tendency to adapt one's priorities concerning the allocation of financial resources in order to become more similar to one's friends or advisors. The latter estimates the effects of life satisfaction on changes in the way specific purposes are prioritized in financial decision-making.

Second, we specify value homophily, as measured by dyadic effects indicating the similarity between actors. These effects capture the tendency for friendship or advice relationships to form between actors who are similar on certain attributes. In all analyses, we include *ego-, alter-, and dyadic effects* for *value- and financial decision-making priorities* as well as *self-monitoring capacities*, which refer to the tendency to send or receive friendship- or advice ties based on such priorities or capacities, or to the preference for having friendship- or advice relationships with peers, who are similar on such capacities or priorities. Additional models further include an effect for having the *same age and gender*, The statistics for age and gender effects are zero, if sender and recipient of a given tie have different age levels or genders, and one if they have the same age or gender. We excluded ego- and alter-effects for age and gender as we did not find any theoretical support for their inclusion in literature.

Third, we report results on interactions of *effects on satisfaction* with *average similarity* effects as well as interactions between *ego satisfaction* and *dyadic effects* of homophily based on *values, social monitoring capacities, financial decision making practices, and demographic characteristics*. The statistics for interaction effects are calculated as the product of the respective statistics.

Meta-analytical procedure

We follow a two stage procedure to aggregate our results in a meta-analysis. In the first stage, we use an unconventional Method of Moments to estimate the model parameters and perform goodness of fit tests for each school class separately. Goodness of fit tests are simulating data on auxiliary statistics, which are compared to the corresponding statistics of observed data. Complying with the standard for publications using SAOMs, we require adequate fit on the auxiliary statistics of indegree- behavior distributions, which was achieved on average for 50 % of all secondary school classes. In the second stage, the separately estimated parameters for each class are aggregated according to the meta-analytical method proposed by [Snijders and Baerveldt, 2003, Ripley et al., 2011].

In this meta-analysis, the mean and variance of the θ vector are estimated across all school classes. Results are reported in each column denoted accordingly, whereby the upper value is the mean μ_θ and the lower value represents the standard error σ_θ. For any given effect, μ_θ is interpreted as the log odds ratio. If μ_θ is estimated at 0.5, the odds ratio is $e^{\mu_\theta} = 1.65$, so the probability for this effect to be present is 65% higher compared to the probability for this effect to be absent. For each effect, μ_θ and σ_θ are tested using Fisher's combined probability tests, investigating if the null Hypothesis: $\theta = 0$ can be rejected in at least one school class [Mercken et al., 2010]. The results reported in each column are both tested against $\theta \neq 0$ (two sided tests) as well as $\theta < 0$ and $\theta > 0$ (one sided tests).

4.4 Results

The following section is structured according to the unique types of social networks. Results on a subset of effects used for Hypothesis testing are reported in Table 4.2. The first column denoted as "Hypothesis" indicates for each hypothesis, which rows of Table 4.2 are used to test it. Results of the corresponding

goodness of fit tests are listed at the bottom Table 4.2. All meta-analyses including the complete lists of effects are shown in the corresponding Tables of the Appendix, as indicated in the last column denoted as "Model".

4.4.1 Dynamics in friendship networks

The results provide sufficient evidence to support Hypotheses 8a and 9a in friendship networks. Gender and age levels are very salient attributes for friendship networks to emerge and persist. Depending on the specific value priorities, which co-determine friendship selection along with the gender attribute, same sex friendships are between 37% (openness to change) and 47% (conservation) more likely to exist compared to friendships among peers with different genders. In particular, given that friendship selection is co-determined by gender and similarities on conservation values, the odds for gender homophily to result in higher life satisfaction are 7% higher than the odds for life satisfaction to be decreased- or to remain unaffected by this tendency. Contrary to our expectations, gender homophily is even more pronounced in advice networks, as shown in additional analyses in Tables 6.46, 6.47 and 6.48 of the Appendix exploring the salience of attributes for the selection of both friends and advisors.

Furthermore, teenagers are not attracted to peers with similar age levels, but rather tend to befriend those with different age levels, as indicated by the results in Table 4.2 and confirmed by additional analyses in Tables 6.37, 6.38 and 6.39 of the Appendix controlling for the motivational goals underlying teenagers' behavioral changes. Surprisingly, the odds for such heterophily based on the level of maturity to have a positive impact on life satisfaction are 6% higher than the odds in favor of the complementary event.

The additional analyses investigating the salience of attributes for the selection of both friends and advisors also confirm Hypothesis 8b suggesting that unlike advice networks, friendship networks are formed and maintained on the basis of social normative behaviors such as financial decision making practices. As shown in Tables 6.40, 6.41 and 6.42 of the Appendix, social norms regarding charity donations appear to be ineffective, as actors do not appear to adjust their corresponding priorities to the average level of charity donations among their friends. However, social norms regarding saving- and spending practices appear to be highly effective, as teenagers are up to 123% and 216% more likely to adapt their respective spending- and saving practices to the average expression among their friends compared to keeping their current behavioral patterns or diverging further away from the average expression of their friends' financial decision making practices.

These findings on changes in behavioral patterns in friendship networks are compatible with the results on friendship selection shown in Table 4.2. Through the similarity in practices for the allocation of financial resources to savings or spending, friendships are 63% and 52% more likely to exist respectively, compared to friendships among peers with dissimilar levels on financial decision making practices. In contrast, similarity in practices for shifting money to charitable organizations does not make friendships more likely to emerge or persist. Our findings additionally confirm Hypothesis 9b, as life satisfaction appears to be unaffected by latent homophily based on financial decision making practices.

Hypothesis 8d is partially supported by our data. On the one hand, our expectations concerning the homophily based on self-enhancement values in friendship networks are confirmed. The odds for teenagers that are similar on self-enhancement values to be friends are higher than the odds for them to ignore each other in friendship considerations. First, in co-evolution with changes in practices to shift money to charitable organization, adolescents that are similar on self-enhancement are equally likely select each other as friends (26% more likely, log odds ratio = 0.230) and advisors (26% more likely, log odds ratio = 0.231). Second, in co-evolution with spending practices, the odds for teenagers to be friends if they are similar on self-transcendence values are no different than the odds for them to ignore each other in friendship selection. Third, in co-evolution with saving practices, our expectations are confirmed, as this proclivity can be observed for the selection of both friends (45% more likely, log odds ratio = 0.370) and advisors (57% more likely, log odds ratio = 0.452). On the other hand, our findings do not provide support for Hypothesis 8d concerning the homophily based on self-transcendence values in friendship networks. Furthermore, in contrast to our expectations from Hypothesis 9d, neither homophily based on self-enhancement values nor corresponding tendencies based on self-transcendence values have an impact on life satisfaction.

Table 4.2: **Social normative behaviors in friendship and advice networks**

Hypothesis	Effects	friendship networks: Self-transcendence	friendship networks: Self-enhancement	friendship networks: Conservation	friendship networks: Openness to change	advice networks: Self-transcendence	advice networks: Self-enhancement	advice networks: Conservation	advice networks: Openness to change	Model
	network transformation to	0.135 0.209 [0.943 , 0.164]	0.188 0.205 [0.938 , 0.129]	0.173 0.226 [0.853 , 0.17]	0.286 0.252 [0.939 , 0.043]	0.773 *** 0.153 [1 , 0]	0.845 *** 0.121 [1 , 0]	0.805 *** 0.128 [1 , 0]	0.857 *** 0.148 [1 , 0]	**Table 6.42**
	satisfaction based selection effects:									
	satisfaction alter	-0.027 0.020 [0.037 , 0.278]	-0.013 0.024 [0.081 , 0.236]	-0.013 0.019 [0.125 , 0.354]	-0.012 0.023 [0.101 , 0.294]	0.050 * 0.021 [0.815 , 0.009]	0.051 *** 0.016 [0.934 , 0.003]	0.025 0.023 [0.566 , 0.063]	0.045 * 0.018 [0.831 , 0.003]	**Table 6.40**
	satisfaction ego	0.000 0.040 [0.28 , 0.486]	-0.015 0.047 [0.132 , 0.578]	-0.020 0.041 [0.179 , 0.692]	0.014 0.040 [0.573 , 0.418]	-0.001 0.037 [0.151 , 0.152]	-0.020 0.029 [0.04 , 0.289]	-0.034 0.029 [0.045 , 0.797]	0.000 0.025 [0.138 , 0.498]	**Table 6.40**
	satisfaction similarity	0.229 0.154 [0.842 , 0.026]	0.290 * 0.146 [0.919 , 0.037]	0.256 † 0.140 [0.898 , 0.044]	0.198 0.145 [0.893 , 0.093]	0.043 0.169 [0.466 , 0.158]	-0.048 0.121 [0.483 , 0.279]	0.164 0.157 [0.851 , 0.05]	-0.049 0.126 [0.569 , 0.203]	**Table 6.40**
	demography based selection effects:									
8a	**same age**	0.009 0.054 [0.133 , 0.328]	0.033 0.074 [0.186 , 0.125]	-0.015 0.054 [0.107 , 0.504]	0.020 0.065 [0.178 , 0.17]					**Table 6.41**
9a	**same age** ***ego satisfaction**	0.044 0.036 [0.768 , 0.071]	0.064 0.046 [0.807 , 0.04]	0.061 † 0.036 [0.859 , 0.074]	0.082 † 0.043 [0.929 , 0.007]					**Table 6.41**
8a	**same sex**	0.350 *** 0.066 [1 , 0]	0.355 *** 0.064 [1 , 0]	0.382 *** 0.068 [1 , 0]	0.312 *** 0.054 [1 , 0]					**Table 6.40**
9a	**same sex** ***ego satisfaction**	0.049 0.044 [0.631 , 0.023]	0.073 0.047 [0.741 , 0.007]	0.071 † 0.043 [0.805 , 0.01]	0.041 0.045 [0.587 , 0.074]					**Table 6.40**
	behavior based selection effects:									
	savings alter	0.016 0.019 [0.804 , 0.101]	0.013 0.018 [0.708 , 0.202]	0.016 0.018 [0.778 , 0.139]	0.024 † 0.014 [0.964 , 0.119]					**Table 6.43**
	savings ego	-0.011 0.014 [0.209 , 0.822]	-0.020 0.015 [0.081 , 0.953]	-0.016 0.015 [0.089 , 0.915]	-0.012 0.014 [0.088 , 0.94]					**Table 6.43**
8b	**savings similarity**	0.490 † 0.292 [0.863 , 0.017]	0.429 0.270 [0.968 , 0.059]	0.570 † 0.297 [0.971 , 0.021]	0.617 * 0.250 [0.995 , 0.011]					**Table 6.43**
9b	savings similarity *ego satisfaction	-0.107 0.157 [0.306 , 0.688]	-0.018 0.146 [0.517 , 0.549]	-0.096 0.158 [0.261 , 0.753]	-0.082 0.150 [0.309 , 0.694]					**Table 6.43**
	spending alter	0.004 0.021 [0.574 , 0.213]	0.006 0.022 [0.434 , 0.231]	0.010 0.023 [0.547 , 0.237]	-0.005 0.018 [0.531 , 0.417]					**Table 6.44**
	spending ego	-0.005 0.015 [0.696 , 0.594]	-0.010 0.015 [0.726 , 0.475]	0.009 0.019 [0.85 , 0.254]	0.005 0.016 [0.921 , 0.31]					**Table 6.44**
8b	**spending similarity**	0.419 † 0.256 [0.975 , 0.068]	0.200 0.270 [0.896 , 0.206]	0.414 0.287 [0.925 , 0.058]	0.244 0.275 [0.969 , 0.082]					**Table 6.44**
9b	spending similarity *ego satisfaction	-0.066 0.175 [0.42 , 0.902]	-0.065 0.179 [0.46 , 0.935]	-0.072 0.175 [0.447 , 0.946]	0.037 0.165 [0.551 , 0.659]					**Table 6.44**
	donations alter	0.003 0.032 [0.588 , 0.617]	0.012 0.032 [0.633 , 0.55]	0.001 0.030 [0.601 , 0.684]	0.009 0.032 [0.639 , 0.486]					**Table 6.45**
	donations ego	0.012 0.032 [0.801 , 0.223]	0.002 0.031 [0.635 , 0.32]	-0.003 0.030 [0.62 , 0.4]	0.010 0.031 [0.702 , 0.243]					**Table 6.45**
8b	donations similarity	0.341 0.302 [0.816 , 0.245]	0.382 0.313 [0.874 , 0.214]	0.247 0.296 [0.831 , 0.348]	0.360 0.308 [0.748 , 0.19]					**Table 6.45**
9b	donations similarity *ego satisfaction	-0.218 0.159 [0.13 , 0.905]	-0.142 0.150 [0.251 , 0.911]	-0.230 0.183 [0.129 , 0.971]	-0.246 0.185 [0.126 , 0.905]					**Table 6.45**
	ability based selection effects:									
	self control alter					0.039 0.055 [0.487 , 0.052]	0.040 0.052 [0.365 , 0.045]	0.021 0.051 [0.309 , 0.072]	0.043 0.043 [0.452 , 0.12]	**Table 6.42**
	self control ego					-0.150 *** 0.045 [0 , 1]	-0.097 † 0.050 [0 , 0.976]	-0.094 * 0.047 [0.003 , 0.988]	-0.107 ** 0.041 [0.001 , 0.999]	**Table 6.42**
8c	**self control similarity**					-0.076 0.131 [0.37 , 0.406]	0.015 0.120 [0.676 , 0.235]	-0.045 0.125 [0.608 , 0.577]	-0.104 0.122 [0.255 , 0.766]	**Table 6.42**
9c	**self control similarity** ***ego satisfaction**					0.164 † 0.085 [0.948 , 0.018]	0.119 † 0.069 [0.931 , 0.05]	0.157 * 0.066 [0.961 , 0.024]	0.137 † 0.073 [0.95 , 0.061]	**Table 6.42**
	resilience alter					0.031 0.055 [0.281 , 0.023]	0.033 0.055 [0.117 , 0.016]	0.027 0.045 [0.486 , 0.024]	0.034 0.047 [0.402 , 0.034]	**Table 6.42**
	resilience ego					0.017 0.056 [0.568 , 0.098]	0.066 0.048 [0.755 , 0.008]	0.028 0.051 [0.635 , 0.169]	0.037 0.046 [0.688 , 0.085]	**Table 6.42**
8c	**resilience similarity**					0.253 0.159 [0.884 , 0.02]	0.224 0.167 [0.785 , 0.011]	0.309 * 0.135 [0.898 , 0.005]	0.271 † 0.149 [0.906 , 0.009]	**Table 6.42**
9c	**resilience similarity** ***ego satisfaction**					0.065 0.068 [0.79 , 0.225]	0.046 0.071 [0.612 , 0.268]	0.071 0.066 [0.819 , 0.249]	0.118 † 0.063 [0.946 , 0.146]	**Table 6.42**
	social risk alter					0.002 0.058 [0.072 , 0.069]	0.033 0.052 [0.387 , 0.027]	0.010 0.062 [0.056 , 0.057]	0.041 0.055 [0.335 , 0.018]	**Table 6.42**
	social risk ego					-0.008 0.042 [0.189 , 0.322]	0.002 0.047 [0.663 , 0.267]	-0.040 0.043 [0.719 , 0.434]	0.016 0.041 [0.731 , 0.479]	**Table 6.42**
8c	**social risk similarity**					0.191 0.129 [0.968 , 0.021]	0.323 * 0.129 [0.998 , 0.01]	0.173 0.123 [0.985 , 0.049]	0.167 0.119 [0.985 , 0.094]	**Table 6.42**
9c	social risk similarity *ego satisfaction					0.001 0.072 [0.538 , 0.776]	0.031 0.075 [0.629 , 0.639]	0.005 0.070 [0.658 , 0.661]	0.026 0.070 [0.573 , 0.625]	**Table 6.42**
	ethical risk alter					-0.059 0.040 [0.026 , 0.883]	-0.117 *** 0.037 [0.001 , 0.99]	-0.064 † 0.036 [0.026 , 0.968]	-0.081 * 0.037 [0.008 , 0.98]	**Table 6.42**
	ethical risk ego					0.120 * 0.058 [0.848 , 0]	0.159 * 0.070 [0.861 , 0]	0.179 *** 0.061 [0.977 , 0]	0.146 * 0.057 [0.967 , 0]	**Table 6.42**
8c	**ethical risk similarity**					0.271 † 0.148 [0.949 , 0.005]	0.235 † 0.129 [0.941 , 0.019]	0.323 * 0.130 [0.974 , 0.004]	0.185 0.135 [0.843 , 0.038]	**Table 6.42**
9c	ethical risk similarity *ego satisfaction					0.051 0.078 [0.651 , 0.152]	0.063 0.072 [0.788 , 0.212]	0.083 0.063 [0.913 , 0.192]	0.070 0.072 [0.818 , 0.149]	**Table 6.42**
	value based selection effects:									
	self-transcendence alter	0.014 0.046 [0.487 , 0.289]				0.059 0.039 [0.923 , 0.042]				**Table 6.41**
	self-transcendence ego	-0.102 * 0.045 [0.001 , 0.991]				-0.022 0.041 [0.093 , 0.507]				**Table 6.41**
8d	**self-transcendence similarity**	0.102 0.132 [0.826 , 0.114]				0.413 *** 0.131 [0.999 , 0]				**Table 6.41**
9d	**self-transcendence similarity** ***ego satisfaction**	0.004 0.075 [0.679 , 0.532]				-0.095 † 0.058 [0.063 , 0.9]				**Table 6.41**
	self-enhancement alter		-0.040 0.031 [0.023 , 0.82]				-0.049 . 0.029 [0.005 , 0.807]			**Table 6.42**
	self-enhancement ego		0.030 0.030 [0.743 , 0.122]				-0.026 0.027 [0.024 , 0.559]			**Table 6.42**
8d	**self-enhancement similarity**		0.230 † 0.137 [0.872 , 0.031]				0.231 * 0.114 [0.938 , 0.019]			**Table 6.42**
9d	self-enhancement similarity *ego satisfaction		0.043 0.071 [0.599 , 0.329]				0.033 0.057 [0.612 , 0.311]			**Table 6.42**
	conservation alter			-0.030 0.035 [0.038 , 0.749]				0.009 0.028 [0.473 , 0.421]		**Table 6.40**
	conservation ego			-0.045 0.050 [0.005 , 0.311]				-0.095 *** 0.032 [0.001 , 0.992]		**Table 6.40**
8d	**conservation similarity**			0.055 0.162 [0.319 , 0.135]				0.206 † 0.122 [0.986 , 0.022]		**Table 6.40**
9d	**conservation similarity)** ***ego satisfaction**			-0.068 0.085 [0.087 , 0.508]				0.195 * 0.078 [0.882 , 0.005]		**Table 6.40**
	openness alter				0.039 0.033 [0.868 , 0.185]				-0.034 0.046 [0.004 , 0.266]	**Table 6.42**
	openness ego				-0.005 0.068 [0.056 , 0.053]				-0.012 0.040 [0.015 , 0.467]	**Table 6.42**
8d	**openness similarity**				0.082 0.117 [0.604 , 0.428]				0.277 * 0.109 [0.976 , 0.002]	**Table 6.42**
9d	openness similarity *ego satisfaction*				-0.020 0.082 [0.468 , 0.416]				0.003 0.058 [0.618 , 0.724]	**Table 6.42**
	behavior change effects:									
	saving on satisfaction	-0.016 . 0.010 [0.062 , 0.927]	-0.018 . 0.009 [0.048 , 0.973]	-0.018 . 0.010 [0.035 , 0.945]	-0.018 . 0.010 [0.028 , 0.919]	-0.010 . 0.009 [0.212 , 0.905]	-0.011 . 0.010 [0.368 , 0.923]	-0.010 . 0.010 [0.219 , 0.844]	-0.006 . 0.010 [0.359 , 0.76]	**Table 6.40**
	spending on satisfaction	0.002 0.010 [0.407 , 0.529]	-0.002 0.010 [0.337 , 0.723]	0.004 0.009 [0.477 , 0.54]	0.005 0.010 [0.476 , 0.464]	-0.010 0.008 [0.196 , 0.965]	-0.011 0.008 [0.128 , 0.973]	-0.008 0.008 [0.136 , 0.92]	-0.014 0.008 [0.076 , 0.987]	**Table 6.41**
	giving on satisfaction	0.023 0.027 [0.745 , 0.127]	0.021 0.027 [0.753 , 0.139]	0.015 0.029 [0.641 , 0.196]	0.006 0.028 [0.52 , 0.265]	-0.001 0.022 [0.908 , 0.565]	0.011 0.020 [0.913 , 0.267]	0.000 0.022 [0.829 , 0.416]	0.004 0.021 [0.813 , 0.483]	**Table 6.42**
	goodness of fit:	μ_p σ_p [converge / χ^2 test / fit]	μ_p σ_p [converge / χ^2 test / fit]	μ_p σ_p [converge / χ^2 test / fit]	μ_p σ_p [converge / χ^2 test / fit]	μ_p σ_p [converge / χ^2 test / fit]	μ_p σ_p [converge / χ^2 test / fit]	μ_p σ_p [converge / χ^2 test / fit]	μ_p σ_p [converge / χ^2 test / fit]	
	GOF (outdegree)	0.331 *** 0.290 [36 , 28]	0.315 *** 0.290 [39 , 29]	0.321 *** 0.285 [37 , 27]	0.291 *** 0.297 [38 , 27]	0.336 *** 0.268 [38 , 33]	0.328 *** 0.280 [38 , 32]	0.313 *** 0.268 [40 , 33]	0.291 *** 0.224 [39 , 34]	
	GOF (behavior)	0.311 *** 0.301 [36 , 25]	0.281 *** 0.284 [39 , 27]	0.286 *** 0.284 [37 , 26]	0.294 *** 0.297 [38 , 25]	0.266 *** 0.278 [38 , 26]	0.280 *** 0.288 [38 , 26]	0.278 *** 0.269 [40 , 29]	0.265 *** 0.267 [39 , 27]	

$^{***}p < 0.01$, $^{**}0.01 < p < 0.05$, $^{*}0.05 < p < 0.1$, $^{\dagger}p < 0.1$

4.4.2 Dynamics in advice networks

As shown in Tables 6.43, 6.44, 6.45 of the Appendix, and summarized in Table 4.2, our findings provide full support for Hypothesis 8c in advice networks. Self-monitoring attributes are very salient for actors, when choosing their advisors.

First, advice relationships are equally fostered through the similarity regarding the capacity to adapt themselves under social pressure (34% more likely, log odds ratio = 0.288), stress or difficulty (31% more likely, log odds ratio = 0.271) as well as the similarity regarding the awareness of social norms (38% more likely, log odds ratios = 0.323) and ethical constraints (26% more likely, log odds ratios = 0.235). Second, elevated levels of teenagers' capacity to adapt their self to social pressure generally make them more popular as advisors (14% more likely, log odds ratio = 0.134), but less inclined to approach their peers for advice (10% less likely, log odds ratio = -0.107). Similarly, while teenagers with higher capacities to adapt their self to stressful or difficult situations are more popular as advisors (9% more likely, log odds ratio = 0.085), their willingness to ask peers for advice is not lower compared to teenagers with lower levels on the corresponding adaptive capacity. Third, teenagers trying to avoid ethical risks are generally less popular as advisors (11% less likely, log odds ratio = -0.117) but more willing to ask peers for advice (17% more likely, log odds ratio = 0.159). Conversely, while teenagers with higher levels of aversion towards social risks are less inclined to approach their peers for advice (6% less likely, log odds ratio = -0.067), they are not more popular as advisors compared to teenagers with lower levels of awareness concerning social desirability.

Moreover, our findings provide partial support for Hypothesis 9c. The odds for life satisfaction to increase through the selection of advisors with similar capacities to adapt their self to social pressure (15% more likely, log odds ratio = 0.137), stress or difficulty (13% more likely, log odds ratio = 0.118) are higher than the odds in favor of the opposite. However, homophilous proclivities regarding the awareness of social norms and ethical constraints have no impact on life satisfaction.

Hypothesis 8d suggests that actors similar in conservation and openness to change are more likely to select each other as advisors, while actors similar in self-transcendence and self-enhancement are more likely to select each other as friends. In the following paragraphs, we describe how far our expectations concerning these homophilous tendencies are confirmed by our results, as summarized in Table 4.2.

First, our findings do not appear to provide any support for Hypothesis 8d concerning the homophily based on self-transcendence values. In co-evolution with spending practices, advice exchange is more likely among teenagers with similar self-transcendence values (51% more likely, log odds ratio = 0.413), which is a tendency that Hypothesis 8d expects for friendship selection. However, our findings show that in advice networks, the odds for homophilous tendencies regarding self-transcendence values to increase teenagers' satisfaction with their lives, are lower than the odds that teenagers' life satisfaction is decreased or remains unaffected (9% less likely, log odds ratio = -0.095). While these findings do not provide any support for Hypothesis 9d, they are providing indirect support for Hypothesis 8dsuggesting that advisors should not be selected based on self-transcendence values, as this tendency has a negative impact on teenagers life satisfaction. Second, in co-evolution with practices related to philantropy, advice relationships are more likely among teenagers with similar emphasis on self-enhancement, which is also a tendency that Hypothesis 8d expects for friendship selection. On the one hand, these findings do not contradict our expectations from Hypothesis 8d, as teenagers with similar emphasis on self-enhancement values are as likely to select each other as advisors (26% more likely, log odds ratio = 0.231), as they are to be friends (26% more likely, log odds ratio = 0.230). On the other hand, our findings concerning Hypothesis 9d suggest that this tendency is not associated with higher levels of life satisfaction in either type of social networks. Third, in co-evolution with philantropic practices, advice relationships are more likely among teenagers placing similar priorities on openness to change (32% more likely, log odds ratio = 0.277), and thus confirming our expectations from Hypothesis 8d. However, the data do not provide sufficient evidence to support our expectations stated in Hypothesis 9d suggesting that homophily based on openness to change values is not associated with higher levels of life satisfaction. Fourth, in co-evolution with practices allocating financial resources to savings, teenagers have a preference to select advisors that are similar on conservation values. The data provides sufficient evidence to confirm Hypothesis 8d, as the odds for advice exchange relationships to emerge between teenagers with similar emphasis on conservation values are higher than the odds in favor of the opposite (23% more likely, log odds ratio = 0.206). Additionally, our findings also provide support for Hypothesis 9d, suggesting that teenagers' life satisfaction is increased through homophilous tendencies regarding conservation values (22% more likely, log odds ratio = 0.195) compared to the opposite event, suggesting that teenagers' life satisfaction is decreased or remains unaffected by the corresponding tendency.

4.5 Discussion

Scholars agree that teenagers are exposed to a variety of unfamiliar, conflicting and ambivalent situations, as they are encouraged to explore many alternative paths in love, work and worldviews shaping their self-identity and avoid social exclusion through compliance with social norms prescribing appropriate behaviors in social interactions. Scholars also agree that adolescents are better able to cope if they can rely on the social support from friendship circles or advice communities. However, the dynamics in different types of social networks and their potential as sources for social support have received little attention in existing literature. Our findings provide insights on how teenagers can elevate their life satisfaction through the selection of friends and advisors with a good match in attributes, which are salient for the respective relationship types.

4.5.1 How are norms transmitted through friendship- and advice relationships affecting life satisfaction?

[Cialdini and Trost, 1998] argue that behavioral patterns can become social norms, if they are triggered by contextual cues in novel- or ambiguous situations, or if they are incentivized and thus performed repeatedly.

We have strong reason to assume that social norms regarding financial decision making not only exist for all behavioral expressions in friendship networks [Kindschi et al., 2019a], but also in advice networks. Similar to the social norms in friendship networks, social normative behaviors regarding allocations of financial resources to spending and saving are also highly effective in advice networks, while norms regarding charitable donations appear to have no effect. Both the effectiveness of norms and the cohesion within the social environment can determine the weight of expectations urging teenagers to behave appropriately. If teenagers feel cognitive dissonance [Festinger, 1962, Hochschild, 1979] - generated by inconsistencies between norms and values [Schwartz, 1990] - but are coerced into conformity through their need for social affiliation [McAlister and Pessemier, 1982] or their fear of social exclusion [Mead et al., 2010], the weight of the corresponding burden becomes heavier. The extent to which they can cope with such expectations can co-determine the way teenagers evaluate the quality of their lives [Festinger, 1954, Diener et al., 1985, Veenhoven and Ehrhardt, 1995, Sagiv and Schwartz, 2000] or the stress they feel as a result [Michie, 2002, Maslach, 2017].

According to [Cialdini and Trost, 1998], the effectiveness of social norms varies according to the cohesion in friendship networks, and the corresponding rate at which teenagers are given opportunities for communication. But are social norms also more or less effective, depending on whether their transmission occurs in friendship circles or in advice exchange communities?

Both tendencies are compared across all school classes in a meta-analysis. The y-axes in the panels of Figure 4.3 represent the log odds ratios, according to which pupils in school classes adapt to social norms regarding financial decision making practices in their friendship- and advice networks. The x-axes indicate the log odds ratios, according to which densities of friendship- or advice network structures in school classes change over time. Colors indicate the degree to which pupils in school classes are satisfied with their lives on average. The meta-analysis reveals considerable variation in these tendencies across school classes, as teenagers' reactions range from reactance [Algesheimer et al., 2005, Levav and Zhu, 2009, Latané et al., 1994] to susceptibility [Cialdini and Trost, 1998].

In friendship networks, social norms regarding allocations of financial resources are slightly more effective in networks with lower densities, while in advice networks, social norms are more effective in networks with higher densities. We are assuming that teenagers like to internalize communal relationships such as friendships into their self-concept [Smith and Rose, 2011]. This implies that the failure to maintain their self concept through the process of losing friends is compensated by the immediacy and attribution of persuasive power to remaining friends [Latané et al., 1994]. In contrast, the loss of advisors does not appear to lead to substantial gaps in adolescents' self concept, and thus, they don't feel the need to compensate such losses by attributing more persuasive power to the remaining advisors.

Figure 4.3 does not reveal specific patterns, how adolescents' tendencies to converge to - or diverge from the average expression of their friends' behavioral patterns - are related to the average degree to which they are satisfied with their lives. Apparently, compliance with social norms regarding financial decison making practices is not associated with life satisfaction, which implies that the corresponding social normative practices are likely to be internalized in teenagers' self identities.

Figure 4.3: *Susceptibility to general normative behavior vs. density in social networks:*

Based on results of meta analyses Tables 6.37, 6.38 and 6.39 of the Appendix with significance levels exceeding 0.1 in Fisher's two sided probability tests
y-Axis: Estimations for average similarity effects on the class level, interpretation of positive effects as susceptibility or convergence towards social norms and negative effects as reactance or divergence from social norms concerning allocations of financial resources to spending, savings or donations.
x-Axis: Estimations for the change in density on the class level.
Color: Based on the 12-point satisfaction with life scale [Diener et al., 1985, Veenhoven and Ehrhardt, 1995, Sagiv and Schwartz, 2000]. Aggregation on the class level yields averages with a range between 5.5 and 9.5. Averages lower than 7 − > "low satisfaction", averages between 7 and 8 − > "intermediate satisfaction", and averages higher than 8 − > "high satisfaction"

4.5.2 What are the differences in the nature of friendship compared to advice relationships?

Social support from friendship- and advice networks does not only have the potential to elevate teenagers' well-being, but also provide access to social resources which are helpful in buffering adversive consequences [Cohen and Wills, 1985] such as burnout. On the one hand, by triggering memories of personal accomplishments, friends are providing emotional encouragement, and thus lower the likelihood of depersonalization and withdrawal. On the other hand, advisors are better able to give tangible assistance by offering to share responsibility for tasks [Ray and Miller, 1994] or help by making suggestions about how to reduce demands, and thus mitigate the extent of exhaustion [Halbesleben, 2006]. Our framework, as shown in Figure 4.1, provides evidence regarding the unique nature of affiliations in friendship- and advice networks.

Our findings support the perspective that friendship relationships are intrinsic or communal. As they are created and maintained on the basis of demographics or social normative behaviors, which are integrated in teenagers' self-identities, they are likely to become part of their self-identity themselves. Thus, they represent self sufficient and communal relationships, in which adolescents are directly concerned with the well-being of their relationship partners.

Our findings also provide support for the perspective that advice relationships are extrinsic or instrumental, as they are formed and maintained primarily on the basis of attributes such as self-monitoring traits, which are instrumental in facilitating the achievement of desirable goals, or the enactment of behaviors that are necessary to achieve such goals [Wright, 1984, Clark, 1981, Clark and Mills, 1979].

But why are teenagers considering their peers' gender to select both their friends and advisors? Complementary analyses exploring the co-evolution of friendship- and advice network structures reveal that teenagers are more likely start asking their friends for advice than to initiate friendship relationships with their advisors. Given the fact that substantial extents of gender homophily can be observed in

friendship networks, teenagers are spending considerably more time with peers of the same gender. Therefore, the fact that gender homophily occurs in advice networks is not a reflection of adolescents' preferences, but rather an artefact created by the convenience associated with approaching friends as easily accessible sources for instrumental support.

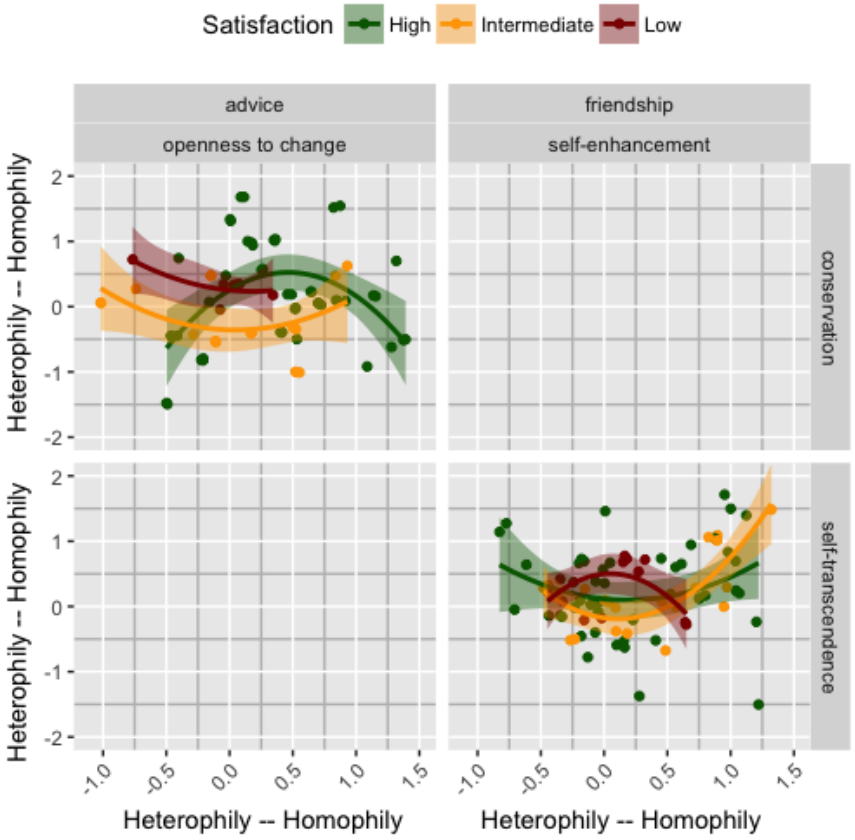

Figure 4.4: *Interaction of homophily on values with social and personal focus:*

Based on aggregated results of meta analyses in Tables 6.37, 6.38 and 6.39 of the Appendix. Upper right hand- and lower left hand panels are empty as significance levels did not exceed 0.1 in Fisher's two sided probability tests
y-Axis: Class level estimations for homophily effects based on similarity in Conservation (social focus for advice panel) or Self-transcendence (social focus for friendship panel).
x-Axis: Class level estimations for homophily effects based on similarity in Openness to change (personal focus for advice panel) or Self-enhancement (personal focus for friendship panel).
Color: Based on the 12-point satisfaction with life scale [Diener et al., 1985, Veenhoven and Ehrhardt, 1995, Sagiv and Schwartz, 2000]. Aggregation on the class level yields averages with a range between 5.5 and 9.5. Averages lower than 7 − > "low satisfaction", averages between 7 and 8 − > "intermediate satisfaction", and averages higher than 8 − > "high satisfaction"

4.5.3 Do friends or advisors provide better social support if they are similar on traits reflecting the nature of the corresponding relationship?

Our findings suggest that teenagers are more likely to consider values on the self-transcendence vs. self enhancement dimension as part of their self-identities, and thus more salient for friendship selection. Even though similarity with respect to values on this dimension is also considered for the selection of advisors, pupils who display this tendency are generally less satisfied with their lives, suggesting that they would be better off not considering these values for the selection of their advisors. Our results further suggest that values on the openness to change vs. conservation value dimension are more likely to be considered instrumental, and thus more salient for the selection of advisors.

Tendencies for homophily on both value dimensions are compared across all school classes in a meta-analysis. The y-axes in the panels of Figure 4.4 represent the log odds ratios, according to which pupils in school classes select advisors that are similar on conservation values and friends that are similar on self-transcendence values. The x-axes indicate the log odds ratios, indicating the likelihood to which pupils select advisors with similar openness values and friends with similar self-enhancement values. The meta-analysis indicates considerable variation in these tendencies across school classes, ranging from homophily to heterophily [McPherson et al., 2001b]. The colors of nodes in Figure 4.4 represent three levels, on which pupils in the corresponding school classes evaluate the quality of their lives on average.

The criteria, according to which pupils select friends are shown in the lower right hand panel of Figure 4.4. On the one hand, if pupils with intermediate or higher levels of life satisfaction do not consider self-transcendence values to select friends, they also disregard self-enhancement values. However, if they do consider self-transcendence values as important attributes, pupils on intermediate levels of life satisfaction are striving for homophily on both higher order values, while highly satisfied pupils prefer friends that are similar on self-transcendence- but different on self enhancement values. On the other hand, if pupils on lower levels of life satisfaction do not give any consideration to self-transcendence values to select friends, they either strive for homophily or show heterophily regarding self-enhancement values. However, if they do not consider self-enhancement values, pupils on lower levels of life satisfaction strive for homophily regarding self-transcendence.

Adolescents are facing conflicts in the simultaneous pursuit of self-transcendence and self-enhancement values [Schwartz et al., 2012, Kindschi et al., 2019b], which implies that friends that are selected based on similarity on self-transcendence values are likely to be similar on self-enhancement as well. But why is multidimensional value homophily [Block and Grund, 2014] not associated with the highest levels of life satisfaction? It appears that groups composed entirely of followers - who are motivated to help each other - are facing similar limitations in reaching higher levels of life satisfaction as groups full of leaders - who are motivated to dominate each other. This implies that groups require balance in the distribution of power among their members in order to reach higher levels of life satisfaction.

A mirror image is shown in the upper left hand panel of Figure 4.4, illustrating criteria for pupils select advisors. On the one hand, if pupils with higher levels of life satisfaction show homophily on conservation values, they also show preferences for having advisors that are similar on openness to change values. However, if they look for advisors, who are different on conservation values, they either strive for homophily or heterophily on openness to change values. On the other hand, if pupils with intermediate or lower levels of life satisfaction show heterophilous tendencies regarding conservation values, they do not consider openness to change values to be salient attributes for the selection of advisors. However, if they look for advisors, who are similar on conservation values, they either strive for homophily or heterophily on openness to change values.

Teenagers in simultaneous pursuit of conservation- and openness to change values are also likely to experience conflict [Schwartz et al., 2012]. This implies that advisors, who are selected based on similarity on conservation values are likely to be similar on openness to change as well. The meta analysis - comparing our findings across all school classes - illustrates that for the selection of advisors, moderate tendencies for homophily on multiple dimensions [Block and Grund, 2014] are associated with the highest levels of life satisfaction. However, groups can also reach the highest levels of life satisfaction on average, if they are composed of members, which are different on conservation values or entirely different on both values. This implies that in order to reach higher levels of life satisfaction, groups prefer uniformity in the way that their members emphasize openness to change- and conservation values. However, if they do not unanimously agree on the importance of self direction and stimulation, advice relationships can still be satisfying if members are different in their prioritization of tradition, conformity or security as well.

4.6 Limitations

Our data is structured hierarchically, whereby school classes are nested in schools. Being organized in school classes representing unique orgnaizational foci, teenagers' utility functions should be assumed to have unique compositions. Similar to the way this article identifies unique sets of attributes, which teenagers consider to select friends and advisors, the respective sets should be subject to class-specific restrictions according to how specific attributes are emphasized or promoted in the corresponding organizational foci. For the sake of simplicity, we assume identical compositions of utility functions for pupils across different classes. However, we identified considerable heterogeneity in how adolescents' tendency to comply with social norms varies across classes. Setting restrictions, which prescribe unique utility

functions for school classes according to groups imposed by the hierarchical data structure might capture heterogeneity in the composition of effects contributing to teenagers' utility functions, and thus bring this article closer to reality. Moreover, random coefficient multi-level analyses could be used to capture heterogeneity in adolescents' reactions to social norms on the individual level. Thus, we call on further research to investigate how the heterogeneity in teenagers' reactions to social norms on the micro-level can be explained by properties emerging on the macro-level of organizational foci.

Furthermore, our analyses are restricted to social contexts of friendship- and advice networks within school classes. Although many activities are organized within these organizational foci, teenagers also participate in social activities that transcend these boundaries through their pursuit of hobbies. Thus, studying the selection of friends and advisors across school classes is essential to understand the impact of organizational foci on the dynamics in different types of social networks.

Finally, the composition of adolescents' utility functions for the selection of peers they want to be affiliated with, might not only depend on the type of affiliation - resulting in a unique nature of friendship- and advice relationships - but also on the cultural context. Differentiated results on the country level are available on request. However, insights from further research, cross-validating our findings in different countries would provide substantial contributions to a more comprehensive understanding of a culture's impact on the determinants and consequences of social norms, as well as the composition of teenagers' utility functions for the selection of friends and advisors.

4.7 Conclusions

To conclude, we emphasize that future research should not only investigate the heterogeneity in the composition of utility functions adolescents use to select friends and advisors across classes and the corresponding impact of cultures, but also the unobserved heterogeneity across individuals. Further research is also needed to find out whether the heterogeneity in key network selection effects can be explained by macro-level properties of organizational foci or by micro-level characteristics or personality traits of individuals. Furthermore, validations of our findings in other countries would also make substantial contributions to a more comprehensive understanding regarding the evolution of social norms in different types of social networks, as well as the salience of specific attributes for adolescents to select friends and advisors across countries with different cultural orientations.

Chapter 5

Conclusion

5.1 Dynamics in social networks and financial decision making

The combined findings from all studies in this dissertation support the view that adolescents are socialized to become consumers. In line with the theory of structuration [Giddens, 1984], teenagers were found to draw on their social network structures for decisions regarding whether- and how much to change financial decision-making practices as well as to use practices such as these to build and shape their social network structures accordingly.

5.1.1 The nature of friendship and advice networks

In line with previous literature, our findings suggest that both friendship and advice networks have a unique nature, as the respective ties can provide better social support if they are selected based on features reflecting the nature of the corresponding relationship. In addition, our findings suggest strong interdependence in the formation and evolution of friendship alongside advice networks. Specifically, teenagers are using their friendship network structures as a pool for the formation of advice network structures. This implies that the effort teenagers put in the formation and maintenance of friendship relationships can be viewed as investments yielding both emotional- as well as instrumental social support.

Moreover, our findings provide support for the view that societies have unique stereotypes, which assume that value priorities are different for boys compared to girls. While boys are socialized to pursue self-enhancement values, girls are encouraged to emphasize openness to change, conservation and self transcendence values. In adolescence, these stereotypes are more salient during the friendship initiation stage, when teenagers don't know anything about their peers except for highly visible attributes such as gender. However, in the maintenance stage of friendship network evolution, teenagers gradually learn more about their friends' true intrinsic motivations, as they spend more time with them. Realizing that the vast heterogeneity in value systems among their friends cannot be captured by the gender stereotypes they were taught in their societies, teenagers are gradually shifting the salience of attributes that are considered for the maintenance of their friendships from gender to value priorities. The implication is that through the instillation of children with expectations that they should pursue gender specific goals, societies also have an impact on the formation of social networks. When teenagers consider peers for friendship selection, they don't have much information about their agendas. Thus, it is convenient for teenagers to use society-inherited gender stereotypes to select their friends and later adjust these stereotypes as well as their social network structures according to their own experiences.

5.1.2 Motivations for financial decision-making practices

In pursuit of building their self-identity, teenagers are drawing on their social network structures to form values along with the underlying intrinsic motivations. All of these motivations are features with the potential to define their roles as consumers. Complementary products such as virtual reality games, allowing users to build characters expressing their ideal selves and to compete with other users, are attractive for teenagers adopting values associated with the motivation to express or enhance their self-concept. New products that don't have any brand recognition, consumer electronics or other durables related to hobbies are attractive for teenagers seeking variety or to understand different aspects of their

reality. Any product or service that can be socially consumed in groups or bestowed to friends is attractive for teenagers seeking to maintain harmony in their social networks. In addition to the values, which are intrinsically motivating teenagers to spend their financial resources, we can also identify intrinsic motivations for adolescents to donate money to charitable organizations. In particular, our findings suggest that adolescents in pursuit of growth related values including benevolence, universalism, stimulation and self-direction are more motivated to donate financial resources compared to teenagers emphasizing power, achievement, security, tradition or conformity. Considering that most adolescents have restricted access to financial resources, using money for spending or donations usually means foregoing opportunities to accumulate savings. According to our findings, adolescents in pursuit of values with a social focus are intrinsically motivated to fund their spending or donation lifestyles through their savings.

As group identities are formed and negotiated, products with established brand identities that provide a good match with the corresponding group identities can be used as instruments for teenagers to express their group membership. Through normative consumption patterns such as these, adolescents are also extrinsically motivated to use their financial resources for purposes that are prescribed by their social networks. Our findings confirm that social norms regarding charity donations are ineffective. As teenagers' decisions to donate money are not driven by motivations to express or enhance their self concept, they don't need the corresponding charitable organizations to know who they are and thus appear to prefer anonymous donations, which makes it practically impossible for corresponding normative behaviors to form. In contrast, our findings confirm that social norms for spending and saving money are highly effective. As a consequence, teenagers are at risk of being socially excluded, if their consumption- or saving patterns deviate from the corresponding group norms. Thus, remaining socially connected with friends and advisors who can provide emotional- and instrumental support is essential for teenagers. The disadvantage of losing social support has particularly heavy implications for teenagers in their roles as consumers. They are better able to cope with the vast variety of products, services and brands if they can outsource the search for information as well as the evaluation of corresponding product- or service attributes to narrow down their selection to their friends or advisors, or subcontract their entire purchase decision to them.

5.1.3 Need for effective financial resource management

In recent years, as the teenage market has been growing in significance, firms have started to design campaigns with marketing activities that are specifically customized to preoccupy teenagers' attention. Our findings provide evidence that it is difficult for teenagers to scale down on their accustomed consumption patterns, particularly given the ubiquity and continuity of temptations and opportunities to spend financial resources, as well as the presence of intrinsic- or extrinsic motivations do so. According to our findings, teenagers showing higher levels of adaptive- and cognitive abilities, as well as forward looking time orientations are better able to evade or resist temptations to spend their financial resources, and stock up their savings accounts instead. Moreover, teenagers appear to have a more pronounced inclination to attribute success or failure to fortuitous or adverse circumstances as well as the effort they put in trials. According to our findings, failures in trials to accumulate savings are increasing teenagers' resilience, and thus provide more motivation to put in extra efforts in future trials compared to successfull trials. Surprisingly, these effects are even more pronounced if teenagers observe the outcomes of trials to accumulate savings among their friends, as opposed to experiencing the corresponding outcomes themselves. Thus, societies need to understand the importance of providing environments for adolescents to acquire capacities and skills that are necessary to manage their financial resources effectively.

5.2 Limitations

Pupils are organized in school classes, which represent unique organizational foci. Considering hierarchical structures, where pupils are nested in school classes and schools, teenagers utility functions should be assumed to have unique compositions across schools or even across school classes. Our findings indicate considerable heterogeneity in adolescents' tendency to select similar friends or advisors, as well as the susceptibility and compliance with social norms across classes. Therefore, the set of effects contributing to teenagers' utility functions should be class-specific depending on how specific attributes or behaviors are emphasized or promoted in the corresponding organizational foci. For the sake of simplicity, the articles contained in this dissertation assume identical compositions of utility functions for all pupils across school classes. However, the heterogeneity in the composition of effects contributing to teenagers' utility functions could be better captured by setting restrictions, which prescribe a unique set of effects

for each school class, and thus improve external validity. Random coefficient multi-level analyses could be used to capture the heterogeneity in adolescents' homophilous tendencies in their friendship- and advice networks, as well as their reactions to social norms on the individual level. However, future research is needed to investigate how the heterogeneity in teenagers' tendency to select similar friends or advisors, as well as the susceptibility and compliance with social norms on the micro-level can be explained by properties emerging on the macro-level of school classes or schools.

Furthermore, the composition of adolescents' utility functions might not only be class specific, but also depend on the level of maturity as well as the cultural context. First, the samples of all papers in this dissertation are restricted to school classes from Poland and Switzerland. Differentiated meta-analyses comparing our findings across these two countries are listed in Tables 6.18, 6.19, 6.20 and 6.21 of the Appendix for values in friendship networks as well as Tables 6.25, 6.26 and 6.27 of the Appendix for financial decision making in friendship and advice networks. However, cross-validating our findings in different countries would substantially contribute to a more comprehensive understanding of a culture's impact on the selection of friends and advisors, changes in financial decision making practices, as well as the composition of the corresponding utility functions. While our findings are providing valuable insights on the interdependencies between financial decision making practices and the selection of friends or advisors in countries representing the cultural orientations of harmony, egalitarianism and intellectual autonomy, these interdependencies could be entirely different in countries representing the cultural orientations of mastery, hierarchy or embeddedness, as suggested in Figure 6.1. Second, the analyses are restricted to a panel of adolescent school classes in each paper of this dissertation. Although behavioral- and structural dynamics in social networks of adolescents are expected to be highest, investigating how children or adults are selecting friends or advisors and adapt financial decision making practices compared to adolescents, as well as the effects making up their respective utility functions would make another substantial contribution. Meta-analyses comparing our findings across panels of children and adolescents are available on request. Financial decision-making practices are restricted to the generic practices of spending, saving and donating financial resources in the papers of this dissertation. Further research investigating adult panels in social contexts of organizations could provide more detailed insights regarding more specific financial decision making practices, such as those listed in Figure 6.2.

Moreover, the intrinsic motivations driving the dynamics in financial decision making are aggregated to higher order values in every paper of this dissertation. Although these constructs of higher order values have been validated extensively, studying the impacts of- and relations between individual goals underlying these value systems would provide a more detailed understanding of the motivational drivers of specific financial decision making practices. Saving or investing in conservative financial solutions such as treasury bonds or mutual funds might be preferred if people are motivated by security values, while stocks, options or forward contracts might be the preferred financial solutions for people who emphasize stimulation or self-direction. In purchase decisions for discretionary spending categories, people prioritizing power or achievement values might be drawn by the challenge of competing in virtual reality games or purchase equipment to pursue sports activities. While people who emphasize hedonsism might be drawn to spend financial resources at the theater and immerse themselves in adventurous or inspiring cinematic experiences, other people might be drawn to the stimulation of seeing new places and different cultures by travelling abroad. In purchase decisions for non-discretionary spending categories, fair-trade or sustainability labels on nutrition- or clothing items might attract the attention of people emphasizing universalism values, while quality and luxury labels might be features, based on which people prioritizing power and achievement values make their purchase decisions. In general purchase decisions, new brands trying to build awareness and recognition in the multi-dimensional landscape of brands and their associations within consumers' minds might be attractive for people emphasizing stimulation values, as they are perfect means to satisfy variety seeking motivations, or the need to understand different aspects of their reality. Products with established brand identities might be favored by people prioritizing tradition-, conformity or security values. Existing brand reputations are not only perfect means to provide consumers with the security they need, established brand images also make the corresponding products ideal means for consumers to tell stories about themselves, or symbols for benefactors to communicate the meaning of their relationships to beneficiaries who receive the corresponding products as gifts.

Finally, the analyses in every paper of this dissertation are restricted to social contexts of friendship- and advice networks within school classes. While a majority of joint activities are organized within these organizational foci, adolescents who are engaged in hobbies usually participate in social activities that transcend these boundaries. Studying the formation and maintenance of relationships across school classes would provide valuable insights on the impact of organizational foci on the dynamics in different types of social networks.

5.3 Conclusions

In conclusion, future research is not only needed to investigate unobserved heterogeneity in the dynamics of financial decision making and social network structures across individuals, but also the heterogeneity in the composition of adolescents' utility functions across classes as well as the corresponding impact of cultures and levels of maturity. Additionally, we call on future research to differentiate between more specific practices of spending, saving and donating financial resources, and thus investigate the motivational drivers of financial decision making in more detail. Finally, we would like to emphasize that future research should not only study the dynamics in different types of social networks, but also the dynamics in social networks that are transcending the boundaries of organizational foci.

Bibliography

[Adler and Kwon, 2002] Adler, P. S. and Kwon, S.-W. (2002). Social capital: Prospects for a new concept. *Academy of Management Review*, 27(1):17–40.

[Adler et al., 1977] Adler, R. P. et al. (1977). Research on the effects of television advertising on children; a review of the literature and recommendations for future research. *ERIC*.

[Agneessens and Wittek, 2011] Agneessens, P. and Wittek, R. (2011). Where do intra-organizational advice relations come from? the role of informal status and social capital in social exchange. *Social Networks*, pages 1–13.

[Algesheimer et al., 2005] Algesheimer, R., Dholakia, U. M., and Herrmann, A. (2005). The social influence of brand community: Evidence from european car clubs. *Journal of Marketing*, 69(3):19–34.

[Allport, 1961] Allport, G. W. (1961). Pattern and growth in personality. *Holt, Reinhart & Winston*.

[Amaral et al., 2000] Amaral, L. A. N., Scala, A., Barthelemy, M., and Stanley, H. E. (2000). Classes of small-world networks. *Proceedings of the National Academy of Sciences*, 97(21):11149–11152.

[Anderson and Nevitte, 2006] Anderson, C. L. and Nevitte, N. (2006). Teach your children well: Values of thrift and saving. *Journal of Economic Psychology*, 27(2):247–261.

[Aral et al., 2009] Aral, S., Muchnik, L., Sundararajan, A., and Jackson, M. O. (2009). Distinguishing influence-based contagion from homophily-driven diffusion in dynamic networks. *Proceedings of the National Academy of Sciences of the United States of America*, 106(51):21544–21549.

[Arnett, 2000] Arnett, J. J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist*, 55(5):469.

[Avery et al., 2007] Avery, D. R., McKay, P. F., and Wilson, D. C. (2007). Engaging the aging workforce: The relationship between perceived age similarity, satisfaction with coworkers, and employee engagement. *Journal of Applied Psychology*, 92(6):1542.

[Bagozzi, 2007] Bagozzi, R. P. (2007). Consumer action. In Malhotra, N. K., editor, *Review of Marketing Research*. Emerald Group Publishing Limited.

[Bagozzi and Dholakia, 1999] Bagozzi, R. P. and Dholakia, U. (1999). Goal setting and goal striving in consumer behavior. *The Journal of Marketing*, pages 19–32.

[Bandura, 1977] Bandura, A. (1977). Self-efficacy: toward a unifying theory of behavioral change. *Psychological review*, 84(2):191.

[Banks et al., 2010] Banks, J., o'Dea, C., and Oldfield, Z. (2010). Cognitive function, numeracy and retirement saving trajectories. *The Economic Journal*, 120(548):381–410.

[Barabási and Albert, 1999] Barabási, A.-L. and Albert, R. (1999). Emergence of scaling in random networks. *Science*, 286(5439):509–512.

[Bardi and Schwartz, 2003] Bardi, A. and Schwartz, S. H. (2003). Values and behavior: Strength and structure of relations. *Personality and social psychology bulletin*, 29(10):1207–1220.

[Beierlein et al., 2014] Beierlein, C., Davidov, E., Cieciuch, J., and Rammstedt, B. (2014). The schwartz values short scale. In *An economic measurement tool for cross-cultural research. Referat na 28th International Congress of Applied Psychology, Paryż, Francja*.

[Berlyne, 1960] Berlyne, D. E. (1960). Conflict, arousal, and curiosity. *McGraw-Hill Book Company*.

[Bilsky and Schwartz, 1994] Bilsky, W. and Schwartz, S. H. (1994). Values and personality. *European Journal of Personality*, 8(3):163–181.

[Björkqvist et al., 1992] Björkqvist, K., Lagerspetz, K. M., and Kaukiainen, A. (1992). Do girls manipulate and boys fight? developmental trends in regard to direct and indirect aggression. *Aggressive Behavior*, 18(2):117–127.

[Block and Grund, 2014] Block, P. and Grund, T. (2014). Multidimensional homophily in friendship networks. *Network Science*, 2(2):189–212.

[Boivin et al., 1995] Boivin, M., Dodge, K. A., and Coie, J. D. (1995). Individual-group behavioral similarity and peer status in experimental play groups of boys: The social misfit revisited. *Journal of Personality and Social Psychology*, 69(2):269.

[Bowerman and Kinch, 1958] Bowerman, C. E. and Kinch, J. W. (1958). Changes in family and peer orientation of children between the fourth and tenth grades. *Social Forces*, 37:206.

[Bowman and Shenton, 1985] Bowman, K. O. and Shenton, L. R. (1985). Method of moments. *Encyclopedia of Statistical Sciences*, 5:467–473.

[Breazeale and Lueg, 2011] Breazeale, M. and Lueg, J. E. (2011). Retail shopping typology of american teens. *Journal of Business Research*, 64(6):565–571.

[Bucciol, 2012] Bucciol, A. (2012). Measuring self-control problems: A structural estimation. *Journal of the European Economic Association*, 10(5):1084–1115.

[Bucciol and Veronesi, 2014] Bucciol, A. and Veronesi, M. (2014). Teaching children to save: What is the best strategy for lifetime savings? *Journal of Economic Psychology*, 45:1–17.

[Bukowski et al., 1994] Bukowski, W. M., Hoza, B., and Boivin, M. (1994). Measuring friendship quality during pre- and early adolescence: The development and psychometric properties of the friendship qualities scale. *Journal of Social and Personal Relationships*, 11:471–484.

[Bundesamt für Statistik, 2019] Bundesamt für Statistik (2019). https://www.bfs.admin.ch/.

[Burk et al., 2007] Burk, W. J., Steglich, C. E., and Snijders, T. A. (2007). Beyond dyadic interdependence: Actor-oriented models for co-evolving social networks and individual behaviors. *International Journal of Behavioral Development*, 31(4):397–404.

[Campbell-Sills and Stein, 2007] Campbell-Sills, L. and Stein, M. B. (2007). Psychometric analysis and refinement of the connor–davidson resilience scale (cd-risc): Validation of a 10-item measure of resilience. *Journal of traumatic stress*, 20(6):1019–1028.

[Checkley and Steglich, 2007] Checkley, M. and Steglich, C. (2007). Partners in power: job mobility and dynamic deal-making. *European Management Review*, 4(3):161–171.

[Cialdini and Trost, 1998] Cialdini, R. B. and Trost, M. R. (1998). Social influence: Social norms, conformity and compliance. *McGraw-Hill*.

[Cieciuch et al., 2016] Cieciuch, J., Davidov, E., and Algesheimer, R. (2016). The stability and change of value structure and priorities in childhood: A longitudinal study. *Social Development*, 25(3):503–527.

[Cieciuch et al., 2013] Cieciuch, J., Schwartz, S. H., and Vecchione, M. (2013). Applying the refined values theory to past data: What can researchers gain? *Journal of Cross-Cultural Psychology*, 44(8):1215–1234.

[Clark, 1981] Clark, M. S. (1981). Noncomparability of benefits given and received: A cue to the existence of friendship. *Social Psychology Quarterly*, pages 375–381.

[Clark and Mills, 1979] Clark, M. S. and Mills, J. (1979). Interpersonal attraction in exchange and communal relationships. *Journal of Personality and Social Psychology*, 37(1):12.

[Cohen and Wills, 1985] Cohen, S. and Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin*, 98(2):310.

[Coleman and Cross, 2000] Coleman, L. J. and Cross, T. L. (2000). Social-emotional development and the personal experience of giftedness. *International Handbook of Giftedness and Talent*, 2:203–212.

[Collins, 2003] Collins, W. A. (2003). More than myth: The developmental significance of romantic relationships during adolescence. *Journal of Research on Adolescence*, 13(1):1–24.

[Cooper and Fazio, 1984] Cooper, J. and Fazio, R. H. (1984). A new look at dissonance. *Advances in experimental social psychology*, 17:229–268.

[Crick and Grotpeter, 1995] Crick, N. R. and Grotpeter, J. K. (1995). Relational aggression, gender, and social-psychological adjustment. *Child Development*, pages 710–722.

[Crouch et al., 2007] Crouch, G. I., Oppewal, H., Huybers, T., Dolnicar, S., Louviere, J. J., and Devinney, T. (2007). Discretionary expenditure and tourism consumption: Insights from a choice experiment. *Journal of Travel Research*, 45(3):247–258.

[Danes and Haberman, 2007] Danes, S. and Haberman, H. (2007). Teen financial knowledge, self-efficacy, and behavior: A gendered view. *SSRN*.

[Deci and Ryan, 1975] Deci, E. L. and Ryan, R. M. (1975). *Intrinsic motivation*. Wiley Online Library.

[Diener et al., 1985] Diener, E., Emmons, R. A., Larsen, R. J., and Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment*, 49(1):71–75.

[Durkheim, 1964] Durkheim, E. (1964). The division of labour in society. *Trans. G. Simpson*.

[Dweck, 1975] Dweck, C. S. (1975). The role of expectations and attributions in the alleviation of learned helplessness. *Journal of Personality and Social Psychology*, 31(4):674.

[Eagly and Crowley, 1986] Eagly, A. H. and Crowley, M. (1986). Gender and helping behavior: A meta-analytic review of the social psychological literature. *Psychological bulletin*, 100(3):283.

[Eder and Hallinan, 1978] Eder, D. and Hallinan, M. T. (1978). Sex differences in children's friendships. *American Sociological Review*, pages 237–250.

[Ehlert et al., 2018] Ehlert, A., Rauhut, H., Kindschi, M., and Algesheimer, R. (2018). Cooperation in social networks. *Working Paper*.

[Ellwardt et al., 2012] Ellwardt, L., Labianca, G. J., and Wittek, R. (2012). Who are the objects of positive and negative gossip at work?: A social network perspective on workplace gossip. *Social Networks*, 34(2):193–205.

[European Statistics, 2019] European Statistics (2019). https://ec.europa.eu/eurostat/data/database.

[Farley, 1986] Farley, F. (1986). The big t in personality. *Psychology today*, 20(5):44–52.

[Farrell et al., 2016] Farrell, L., Fry, T. R., and Risse, L. (2016). The significance of financial self-efficacy in explaining women's personal finance behaviour. *Journal of Economic Psychology*, 54:85–99.

[Feather, 1996] Feather, N. T. (1996). Values, deservingness, and attitudes toward high achievers: Research on tall poppies. In Seligman, C., O. J. M. and Zanna, M. P., editors, *The Psychology of Values: The Ontario symposium*. Mahwah, NJ: Lawrence Erlbaum Associates.

[Feiring, 1999] Feiring, C. (1999). Other-sex friendship networks and the development of romantic relationships in adolescence. *Journal of Youth and Adolescence*, 28(2):495–512.

[Feld, 1981] Feld, S. L. (1981). The focused organization of social ties. *American Journal of Sociology*, 86(5):1015–1035.

[Feld, 1982] Feld, S. L. (1982). Social structural determinants of similarity among associates. *American Sociological Review*, pages 797–801.

[Feltey and Poloma, 1991] Feltey, K. M. and Poloma, M. M. (1991). From sex differences to gender role beliefs: Exploring effects on six dimensions of religiosity. *Sex Roles*, 25(3-4):181–193.

[Festinger, 1954] Festinger, L. (1954). A theory of social comparison processes. *Human relations*, 7(2):117–140.

[Festinger, 1962] Festinger, L. (1962). *A theory of cognitive dissonance*. Stanford university press.

[Festinger and Hutte, 1954] Festinger, L. and Hutte, H. A. (1954). An experimental investigation of the effect of unstable interpersonal relations in a group. *The Journal of Abnormal and Social Psychology*, 49(4):513.

[Fischer, 1982] Fischer, C. S. (1982). What do we mean by 'friend'? an inductive study. *Social Networks*, 3(4):287–306.

[Fiske and Taylor, 1991] Fiske, S. T. and Taylor, S. E. (1991). Social cognition. *NY: McGraw-Hill*, pages 16–15.

[Flynn et al., 2006] Flynn, F. J., Reagans, R. E., Amanatullah, E. T., and Ames, D. R. (2006). Helping one's way to the top: self-monitors achieve status by helping others and knowing who helps whom. *Journal of Personality and Social Psychology*, 91(6):1123.

[Freeman, 1992] Freeman, L. C. (1992). Filling in the blanks: A theory of cognitive categories and the structure of social affiliation. *Social Psychology Quarterly*, pages 118–127.

[Freud, 1933] Freud, S. (1933). New introductory lectures on psycho-analysis. translated by wjh sprott. *Carlton House*.

[Friemel, 2012] Friemel, T. N. (2012). Network dynamics of television use in school classes. *Social Networks*, 34(3):346–358.

[Fromkin and Snyder, 1980] Fromkin, H. L. and Snyder, C. R. (1980). The search for uniqueness and valuation of scarcity. In *Social Exchange*. Springer.

[Frydenberg and Lewis, 2000] Frydenberg, E. and Lewis, R. (2000). Teaching coping to adolescents: when and to whom? *American Educational Research Journal*, 37(3):727–745.

[Gangestad and Snyder, 2000] Gangestad, S. W. and Snyder, M. (2000). Self-monitoring: Appraisal and reappraisal. *Psychological Bulletin*, 126(4):530.

[Giddens, 1984] Giddens, A. (1984). *The constitution of society: Outline of the theory of structure. Berkeley*. CA: University of California Press.

[Giddens, 1991] Giddens, A. (1991). *Modernity and self-identity: Self and society in the late modern age*. Stanford University Press.

[Gordon, 1960] Gordon, L. V. (1960). *Survey of interpersonal values*. Science Research Associates.

[Granovetter, 1977] Granovetter, M. S. (1977). The strength of weak ties: A network theory revisited. *Social networks*, pages 347–367.

[Greenberg et al., 1983] Greenberg, M. T., Siegel, J. M., and Leitch, C. J. (1983). The nature and importance of attachment relationships to parents and peers during adolescence. *Journal of Youth and Adolescence*, 12(5):373–386.

[Grüsser et al., 2006] Grüsser, S. M., Thalemann, R., and Griffiths, M. D. (2006). Excessive computer game playing: evidence for addiction and aggression? *CyberPsychology & Behavior*, 10(2):290–292.

[Gul and Pesendorfer, 2001] Gul, F. and Pesendorfer, W. (2001). Temptation and self-control. *Econometrica*, 69(6):1403–1435.

[Haggberg, 1992] Haggberg, M. (1992). Why donors give. *Fund Raising Management*, 23(2):39.

[Halbesleben, 2006] Halbesleben, J. R. (2006). Sources of social support and burnout: a meta-analytic test of the conservation of resources model. *Journal of Applied Psychology*, 91(5):1134.

[Hallinan, 1979] Hallinan, M. T. (1979). Structural effects on children's friendships and cliques. *Social Psychology Quarterly*, pages 43–54.

[Hallinan and Williams, 1989] Hallinan, M. T. and Williams, R. A. (1989). Interracial friendship choices in secondary schools. *American Sociological Review*, pages 67–78.

[Hanneke and Xing, 2007] Hanneke, S. and Xing, E. P. (2007). Discrete temporal models of social networks. In *Statistical network analysis: Models, issues, and new directions*, pages 115–125. Springer.

[Haye et al., 2013] Haye, K., Robins, G., Mohr, P., and Wilson, C. (2013). Adolescents' intake of junk food: Processes and mechanisms driving consumption similarities among friends. *Journal of Research on Adolescence*, 23(3):524–536.

[Hayhoe et al., 2000] Hayhoe, C. R., Leach, L. J., Turner, P. R., Bruin, M. J., and Lawrence, F. C. (2000). Differences in spending habits and credit use of college students. *Journal of Consumer Affairs*, 34(1):113–133.

[Heider, 1958] Heider, F. (1958). *The psychology of interpersonal relations*. Psychology Press.

[Hill and Beatty, 2011] Hill, W. W. and Beatty, S. E. (2011). A model of adolescents' online consumer self-efficacy (ocse). *Journal of Business Research*, 64(10):1025–1033.

[Hirschman, 1980] Hirschman, E. C. (1980). Innovativeness, novelty seeking, and consumer creativity. *Journal of Consumer Research*, 7(3):283–295.

[Hochschild, 1979] Hochschild, A. R. (1979). Emotion work, feeling rules, and social structure. *American Journal of Sociology*, 85(3):551–575.

[Hogg and Terry, 2000] Hogg, M. A. and Terry, D. I. (2000). Social identity and self-categorization processes in organizational contexts. *Academy of Management Review*, 25(1):121–140.

[Holbrook and Hirschman, 1982] Holbrook, M. B. and Hirschman, E. C. (1982). The experiential aspects of consumption: Consumer fantasies, feelings, and fun. *Journal of Consumer Research*, 9(2):132–140.

[Holland and Leinhardt, 1977] Holland, P. W. and Leinhardt, S. (1977). A dynamic model for social networks. *Journal of Mathematical Sociology*, 5(1):5–20.

[Houston and Mednick, 1963] Houston, J. P. and Mednick, S. A. (1963). Creativity and the need for novelty. *The Journal of Abnormal and Social Psychology*, 66(2):137.

[Huberman et al., 2004] Huberman, B. A., Loch, C. H., and Önçüler, A. (2004). Status as a valued resource. *Social Psychology Quarterly*, 67(1):103–114.

[Iacovetta, 1975] Iacovetta, R. (1975). Adolescent-adult interaction and peer-group involvement. *Adolescence*, 10(39):327.

[Ibarra, 1993] Ibarra, H. (1993). Personal networks of women and minorities in management: A conceptual framework. *Academy of Management Review*, 18(1):56–87.

[Jensen, 2004] Jensen, J. (2004). *Emerging adulthood: The winding road from the late teens through the twenties*. Oxford University Press.

[Judge et al., 2002] Judge, T. A., Bono, J. E., Ilies, R., and Gerhardt, M. W. (2002). Personality and leadership: a qualitative and quantitative review. *Journal of Applied Psychology*, 87(4):765.

[Judge et al., 1999] Judge, T. A., Higgins, C. A., Thoresen, C. J., and Barrick, M. R. (1999). The big five personality traits, general mental ability, and career success across the life span. *Personnel Psychology*, 52(3):621–652.

[Juvonen and Graham, 2014] Juvonen, J. and Graham, S. (2014). Bullying in schools: The power of bullies and the plight of victims. *Annual Review of Psychology*, 65:159–185.

[Kalmijn, 1995] Kalmijn, M. (1995). Intermarriage and homogamy: Causes, patterns, trends. *Annual review of sociology*, 24(1):395–421.

[Kandel, 1978] Kandel, D. B. (1978). Homophily, selection, and socialization in adolescent friendships. *American Journal of Sociology*, 84(2):427–436.

[Kelvin, 1977] Kelvin, P. (1977). Predictability, power and vulnerability in interpersonal attraction. *Theory and Practice in Interpersonal Attraction*, pages 355–378.

[Kilduff and Day, 1994] Kilduff, M. and Day, D. V. (1994). Do chameleons get ahead? the effects of self-monitoring on managerial careers. *Academy of Management Journal*, 37(4):1047–1060.

[Kilduff and Krackhardt, 1994] Kilduff, M. and Krackhardt, D. (1994). Bringing the individual back in: A structural analysis of the internal market for reputation in organizations. *Academy of Management Journal*, 37(1):87–108.

[Kim and Chatterjee, 2013] Kim, J. and Chatterjee, S. (2013). Childhood financial socialization and young adults' financial management. *Journal of Financial Counseling & Planning*, 24(1).

[Kindschi et al., 2019a] Kindschi, M., Cieciuch, J., Davidov, E., Ehlert, A., Rauhut, H., Tessone, J. C., and Algesheimer, R. (2019a). Financial decision making in adolescent friendship networks. *Working Paper*.

[Kindschi et al., 2019b] Kindschi, M., Cieciuch, J., Davidov, E., Ehlert, A., Rauhut, H., Tessone, J. C., and Algesheimer, R. (2019b). Values in friendship networks. *Working Paper*.

[Kluckhohn, 1951] Kluckhohn, C. (1951). *Values and value-orientations in the theory of action: An exploration in definition and classification*. Wiley Online Library.

[Kluckhohn et al., 1951] Kluckhohn, C., Parsons, T., and Shils, E. A. (1951). Values and value-orientations in the theory of action: An exploration in definition and classification. In Parsons, T. and Shils, E., editors, *Toward a general theory of action*. Cambridge, MA: Harvard University Press.

[Knecht et al., 2010] Knecht, A., Snijders, T. A., Baerveldt, C., Steglich, C. E., and Raub, W. (2010). Friendship and delinquency: Selection and influence processes in early adolescence. *Social Development*, 19(3):494–514.

[Kohn and Schooler, 1983] Kohn, M. L. and Schooler, C. (1983). *Work and personality: An inquiry into the impact of social stratification*. Ablex Pub.

[Korman, 1974] Korman, A. K. (1974). *The psychology of motivation.* Prentice-Hall.

[Krackhardt, 1990] Krackhardt, D. (1990). Assessing the political landscape: Structure, cognition, and power in organizations. *Administrative Science Quarterly*, pages 342–369.

[Krackhardt and Kilduff, 1999] Krackhardt, D. and Kilduff, M. (1999). Whether close or far: Social distance effects on perceived balance in friendship networks. *Journal of Personality and Social Psychology*, 76(5):770.

[Labun et al., 2016] Labun, A., Wittek, R., and Steglich, C. (2016). The co-evolution of power and friendship networks in an organization. *Network Science*, 4(3):364–384.

[Lagerspetz et al., 1988] Lagerspetz, K. M., Björkqvist, K., and Peltonen, T. (1988). Is indirect aggression typical of females? gender differences in aggressiveness in 11-to 12-year-old children. *Aggressive Behavior*, 14(6):403–414.

[Langer, 1975] Langer, E. J. (1975). The illusion of control. *Journal of Personality and Social Psychology*, 32(2):311.

[Larson, 1972a] Larson, L. E. (1972a). The influence of parents and peers during adolescence: The situation hypothesis revisited. *Journal of Marriage and the Family*, pages 67–74.

[Larson, 1972b] Larson, L. E. (1972b). The relative influence of parent-adolescent affect in predicting the salience hierarchy among youth. *Pacific Sociological Review*, 15(1):83–102.

[Latané, 1981] Latané, B. (1981). The psychology of social impact. *American Psychologist*, 36(4):343.

[Latané et al., 1994] Latané, B., Nowak, A., and Liu, J. H. (1994). Measuring emergent social phenomena: Dynamism, polarization, and clustering as order parameters of social systems. *Behavioral Science*, 39(1):1–24.

[Lazarsfeld et al., 1954] Lazarsfeld, P. F., Merton, R. K., et al. (1954). Friendship as a social process: A substantive and methodological analysis. *Freedom and control in modern society*, 18(1):18–66.

[Lee and Shrum, 2012] Lee, J. and Shrum, L. (2012). Conspicuous consumption versus charitable behavior in response to social exclusion: A differential needs explanation. *Journal of Consumer Research*, 39(3):530–544.

[Lehmann, 1999] Lehmann, E. L. (1999). *Elements of large-sample theory*. Springer Science & Business Media.

[Levav and Zhu, 2009] Levav, J. and Zhu, R. (2009). Seeking freedom through variety. *Journal of Consumer Research*, 36(4):600–610.

[Lewin et al., 1951] Lewin, K. et al. (1951). Field theory in social science. *Harper*.

[Lewis et al., 2012] Lewis, K., Gonzalez, M., and Kaufman, J. (2012). Social selection and peer influence in an online social network. *Proceedings of the National Academy of Sciences*, 109(1):68–72.

[Lim et al., 2014] Lim, H., Heckman, S., Montalto, C., and Letkiewicz, J. (2014). Financial stress, self-efficacy, and financial help-seeking behavior of college students. *SSRN*.

[Loch et al., 2001] Loch, C., Yaziji, M., and Langen, C. (2001). The fight for the alpha position:: Channeling status competition in organizations. *European Management Journal*, 19(1):16–25.

[Loke et al., 2015] Loke, V., Choi, L., and Libby, M. (2015). Increasing youth financial capability: An evaluation of the mypath savings initiative. *Journal of Consumer Affairs*, 49(1):97–126.

[Lorenz et al., 2011] Lorenz, J., Rauhut, H., Schweitzer, F., and Helbing, D. (2011). How social influence can undermine the wisdom of crowd effect. *Proceedings of the National Academy of Sciences*, 108(22):9020–9025.

[Lusardi, 1999] Lusardi, A. (1999). Information, expectations, and savings for retirement. *Behavioral Dimensions of Retirement Economics*, 81:115.

[Lusardi et al., 2010] Lusardi, A., Mitchell, O. S., and Curto, V. (2010). Financial literacy among the young. *Journal of Consumer Affairs*, 44(2):358–380.

[Lykes, 1985] Lykes, M. B. (1985). Gender and individualistic vs. collectivist bases for notions about the self. *Journal of Personality*, 53(2):356–383.

[Maddi, 1961] Maddi, S. R. (1961). Exploratory behavior and variation-seeking in man. *Functions of varied experience*, pages 253–277.

[Mandell and Klein, 2009] Mandell, L. and Klein, L. (2009). The impact of financial literacy education on subsequent financial behavior. *SSRN*.

[Markiewicz et al., 2000] Markiewicz, D., Devine, I., and Kausilas, D. (2000). Friendships of women and men at work: Job satisfaction and resource implications. *Journal of Managerial Psychology*, 15(2):161–184.

[Markus and Oyserman, 1989] Markus, H. and Oyserman, D. (1989). Gender and thought: The role of the self-concept. In *Gender and thought: Psychological perspectives*, pages 100–127. Springer.

[Marsden, 1987] Marsden, P. V. (1987). Core discussion networks of americans. *American Sociological Review*, pages 122–131.

[Maslach, 2017] Maslach, C. (2017). Burnout: A multidimensional perspective. In *Professional Burnout*. Routledge.

[Maslow, 1959] Maslow, A. H. (1959). New knowledge in human values. *Harper*.

[McAlister and Pessemier, 1982] McAlister, L. and Pessemier, E. (1982). Variety seeking behavior: An interdisciplinary review. *Journal of Consumer Research*, 9(3):311–322.

[McClelland et al., 1953] McClelland, D. C., Atkinson, J. W., Clark, R. A., and Lowell, E. L. (1953). The achievement motive. *Appleton-Century-Crofts*.

[McLeod and O'Keefe, 1972] McLeod, J. M. and O'Keefe, G. J. (1972). The socialization perspective and communication behavior. *Current perspectives in mass communication research*, pages 121–168.

[McPherson et al., 2001a] McPherson, M., Smith-Lovin, L., and Cook, J. M. (2001a). Birds of a feather: Homophily in social networks. *Annual review of sociology*, 27(1):415–444.

[McPherson et al., 2001b] McPherson, M., Smith-Lovin, L., and Cook, J. M. (2001b). Birds of a feather: Homophily in social networks. *Annual Review of Sociology*, 27:415–444.

[Mead et al., 2010] Mead, N. L., Baumeister, R. F., Stillman, T. F., Rawn, C. D., and Vohs, K. D. (2010). Social exclusion causes people to spend and consume strategically in the service of affiliation. *Journal of Consumer Research*, 37(5):902–919.

[Mehra et al., 2001] Mehra, A., Kilduff, M., and Brass, D. J. (2001). The social networks of high and low self-monitors: Implications for workplace performance. *Administrative Science Quarterly*, 46(1):121–146.

[Mercken et al., 2010] Mercken, L., Snijders, T. A., Steglich, C., Vartiainen, E., and De Vries, H. (2010). Dynamics of adolescent friendship networks and smoking behavior. *Social Networks*, 32(1):72–81.

[Michie, 2002] Michie, S. (2002). Causes and management of stress at work. *Occupational and Environmental Medicine*, 59(1):67–72.

[Miller, 1977] Miller, D. T. (1977). Altruism and threat to a belief in a just world. *Journal of Experimental Social Psychology*, 13(2):113–124.

[Morris, 1956] Morris, C. (1956). Varieties of human value. *University of Chicago Press*.

[Moschis, 1985] Moschis, G. P. (1985). The role of family communication in consumer socialization of children and adolescents. *Journal of Consumer Research*, 11(4):898–913.

[Moschis and Churchill Jr, 1978] Moschis, G. P. and Churchill Jr, G. A. (1978). Consumer socialization: A theoretical and empirical analysis. *Journal of Marketing Research*, pages 599–609.

[Murphy and Ackermann, 2014] Murphy, R. O. and Ackermann, K. A. (2014). Social value orientation: Theoretical and measurement issues in the study of social preferences. *Personality and Social Psychology Review*, 18(1):13–41.

[Musgrove, 1963] Musgrove, F. (1963). Inter-generation attitudes. *British Journal of Social and Clinical Psychology*, 2(3):209–223.

[Newcomb, 1961] Newcomb, T. M. (1961). The acquaintance process. *Holt, Rinehart & Winston*.

[O'cass and Frost, 2002] O'cass, A. and Frost, H. (2002). Status brands: examining the effects of non-product-related brand associations on status and conspicuous consumption. *Journal of Product & Brand Management*, 11(2):67–88.

[O'cass and McEwen, 2004] O'cass, A. and McEwen, H. (2004). Exploring consumer status and conspicuous consumption. *Journal of Consumer Behaviour: An International Research Review*, 4(1):25–39.

[Olshavsky and Granbois, 1979] Olshavsky, R. W. and Granbois, D. H. (1979). Consumer decision making—fact or fiction? *Journal of Consumer Research*, 6(2):93–100.

[Parsons, 1991] Parsons, T. (1991). The social system. *Psychology Press*.

[Pearson et al., 2006] Pearson, M., Steglich, C., and Snijders, T. (2006). Homophily and assimilation among sport-active adolescent substance users. *Connections*, 27(1):47–63.

[Radcliffe-Brown, 1952] Radcliffe-Brown, A. R. (1952). Structure and function. *London: Cohen and West*.

[Ratner and Kahn, 2002] Ratner, R. K. and Kahn, B. E. (2002). The impact of private versus public consumption on variety-seeking behavior. *Journal of Consumer Research*, 29(2):246–257.

[Ray and Miller, 1994] Ray, E. B. and Miller, K. I. (1994). Social support, home/work stress, and burnout: Who can help? *The Journal of Applied Behavioral Science*, 30(3):357–373.

[Reckwitz, 2002] Reckwitz, A. (2002). Toward a theory of social practices: A development in culturalist theorizing. *European Journal of Social Theory*, 5(2):243–263.

[Ripley et al., 2011] Ripley, R. M., Snijders, T. A., Preciado, P., et al. (2011). Manual for rsiena. *University of Oxford, Department of Statistics, Nuffield College*, 1.

[Robins and Pattison, 2001] Robins, G. and Pattison, P. (2001). Random graph models for temporal processes in social networks. *Journal of Mathematical Sociology*, 25(1):5–41.

[Rohan, 2000] Rohan, M. J. (2000). A rose by any name? the values construct. *Personality and Social Psychology Review*, 4(3):255–277.

[Rokeach, 1973] Rokeach, M. (1973). *The nature of human values.* Free press.

[Sagiv and Schwartz, 2000] Sagiv, L. and Schwartz, S. H. (2000). Value priorities and subjective well-being: Direct relations and congruity effects. *European Journal of Social Psychology*, 30(2):177–198.

[Sargeant, 1999] Sargeant, A. (1999). Charitable giving: Towards a model of donor behaviour. *Journal of Marketing Management*, 15(4):215–238.

[Schaefer et al., 2011] Schaefer, D. R., Kornienko, O., and Fox, A. M. (2011). Misery does not love company: Network selection mechanisms and depression homophily. *American Sociological Review*, 76(5):764–785.

[Schaller and Latané, 1996] Schaller, M. and Latané, B. (1996). Dynamic social impact and the evolution of social representations: A natural history of stereotypes. *Journal of Communication*, 46(4):64–77.

[Schutz, 1958] Schutz, W. C. (1958). Firo: A three-dimensional theory of interpersonal behavior. *Rinehart*.

[Schwartz, 1967] Schwartz, B. (1967). The social psychology of the gift. *American journal of Sociology*, 73(1):1–11.

[Schwartz, 1996] Schwartz, S. (1996). Value priorities and behavior: Applying a theory of integrated value systems. In Seligman, C., Olsen, J. M., and Zanna, M. P., editors, *The Psychology of Values: The Ontario Symposium*, volume 8, pages 1–24. Mahwah (NJ), Lawrence Erlbaum Associates Inc.

[Schwartz, 1990] Schwartz, S. H. (1990). Individualism-collectivism: Critique and proposed refinements. *Journal of cross-cultural psychology*, 21(2):139–157.

[Schwartz, 1992] Schwartz, S. H. (1992). Universals in the content and structure of values: Theoretical advances and empirical tests in 20 countries. *Advances in experimental social psychology*, 25:1–65.

[Schwartz, 1999] Schwartz, S. H. (1999). A theory of cultural values and some implications for work. *Applied Psychology*, 48(1):23–47.

[Schwartz, 2006] Schwartz, S. H. (2006). A theory of cultural value orientations: Explication and applications. *Comparative Sociology*, 5(2):137–182.

[Schwartz and Bilsky, 1987] Schwartz, S. H. and Bilsky, W. (1987). Toward a universal psychological structure of human values. *Journal of personality and social psychology*, 53(3):550.

[Schwartz et al., 2012] Schwartz, S. H., Cieciuch, J., Vecchione, M., and Davidov, E. (2012). Refining the theory of basic human values. *Journal of Personality and Social Psychology*, 103(4):663–688.

[Schwartz and Rubel, 2005] Schwartz, S. H. and Rubel, T. (2005). Sex differences in value priorities: Cross-cultural and multimethod studies. *Journal of personality and social psychology*, 89(6):1010.

[Schwarz and Clore, 1983] Schwarz, N. and Clore, G. L. (1983). Mood, misattribution, and judgments of well-being: informative and directive functions of affective states. *Journal of Personality and Social Psychology*, 45(3):513.

[Scott and Scott, 1965] Scott, W. A. and Scott, R. (1965). Values and organizations.

[Shanahan, 2000] Shanahan, M. J. (2000). Pathways to adulthood in changing societies: Variability and mechanisms in life course perspective. *Annual Review of Sociology*, 26(1):667–692.

[Sherry Jr, 1983] Sherry Jr, J. F. (1983). Gift giving in anthropological perspective. *Journal of Consumer Research*, 10(2):157–168.

[Shrum et al., 1988] Shrum, W., Cheek Jr, N. H., and MacD, S. (1988). Friendship in school: Gender and racial homophily. *Sociology of Education*, pages 227–239.

[Sirgy, 1982] Sirgy, M. J. (1982). Self-concept in consumer behavior: A critical review. *Journal of Consumer Research*, 9(3):287–300.

[Skimina et al., 2018] Skimina, E., Cieciuch, J., Schwartz, S. H., Davidov, E., and Algesheimer, R. (2018). Testing the circular structure and importance hierarchy of value states in real-time behaviors. *Journal of Research in Personality*, 74:42–49.

[Smith and Rose, 2011] Smith, R. L. and Rose, A. J. (2011). The "cost of caring" in youths' friendships: Considering associations among social perspective taking, co-rumination, and empathetic distress. *Developmental psychology*, 47(6):1792.

[Smith, 1976] Smith, T. E. (1976). Push versus pull: Intra-family versus peer-group variables as possible determinants of adolescent orientations to ward parents. *Youth & Society*, 8(1):5–26.

[Snijders, 2001] Snijders, T. A. (2001). The statistical evaluation of social network dynamics. *Sociological Methodology*, 31(1):361–395.

[Snijders and Baerveldt, 2003] Snijders, T. A. and Baerveldt, C. (2003). A multilevel network study of the effects of delinquent behavior on friendship evolution. *Journal of Mathematical Sociology*, 27(2-3):123–151.

[Snijders et al., 2010] Snijders, T. A., Van de Bunt, G. G., and Steglich, C. E. (2010). Introduction to stochastic actor-based models for network dynamics. *Social Networks*, 32(1):44–60.

[Snyder, 1987] Snyder, M. (1987). *Public appearances, Private realities: The psychology of self-monitoring.* WH Freeman/Times Books/Henry Holt & Co.

[Snyder and Copeland, 1989] Snyder, M. and Copeland, J. (1989). Self-monitoring processes in organizational settings. *Lawrence Erlbaum Associates, Inc.*

[Solish et al., 2010] Solish, A., Perry, A., and Minnes, P. (2010). Participation of children with and without disabilities in social, recreational and leisure activities. *Journal of Applied Research in Intellectual Disabilities*, 23(3):226–236.

[Solomon, 1983] Solomon, M. R. (1983). The role of products as social stimuli: A symbolic interactionism perspective. *Journal of Consumer Research*, 10(3):319–329.

[Sparrowe et al., 2001] Sparrowe, R. T., Liden, R. C., Wayne, S. J., and Kraimer, M. L. (2001). Social networks and the performance of individuals and groups. *Academy of Management Journal*, 44(2):316–325.

[Steglich et al., 2010a] Steglich, C., Snijders, T. A., and Pearson, M. (2010a). Dynamic networks and behavior: Separating selection from influence. *Sociological Methodology*, 40(1):329–393.

[Steglich et al., 2010b] Steglich, C., Snijders, T. A., and Pearson, M. (2010b). Dynamic networks and behavior: Separating selection from influence. *Sociological Methodology*, 40(1):329–393.

[Steglich et al., 2006] Steglich, C., Snijders, T. A., and West, P. (2006). Applying siena. *Methodology*, 2(1):48–56.

[Stormshak et al., 1999] Stormshak, E. A., Bierman, K. L., Bruschi, C., Dodge, K. A., and Coie, J. D. (1999). The relation between behavior problems and peer preference in different classroom contexts. *Child Development*, 70(1):169–182.

[Sumner, 1906] Sumner, W. G. (1906). Folkways: A study of the sociological importance of usages. *Manners, Customs, Mores, And Morals*, page 12.

[Tangney et al., 2004] Tangney, J. P., Baumeister, R. F., and Boone, A. L. (2004). High self-control predicts good adjustment, less pathology, better grades, and interpersonal success. *Journal of Personality*, 72(2):272–322.

[Tangney et al., 2018] Tangney, J. P., Boone, A. L., and Baumeister, R. F. (2018). High self-control predicts good adjustment, less pathology, better grades, and interpersonal success. In *Self-Regulation and Self-Control*, pages 181–220. Routeledge.

[Taylor, 1989] Taylor, C. (1989). *Sources of the self: The making of the modern identity*. Harvard University Press.

[Turner, 1982] Turner, J. C. (1982). Towards a cognitive redefinition of the social group. *Social Identity and Intergroup Relations*, pages 15–40.

[Turner, 1985] Turner, J. C. (1985). Social categorization and the self-concept: A social cognitive theory of group behavior. *Advances in Group Processes*, 2:77–122.

[Van de Bunt et al., 2005] Van de Bunt, G. G., Wittek, R. P., and de Klepper, M. C. (2005). The evolution of intra-organizational trust networks: The case of a german paper factory: An empirical test of six trust mechanisms. *International Sociology*, 20(3):339–369.

[Van Duijn et al., 2003] Van Duijn, M. A., Zeggelink, E. P., Huisman, M., Stokman, F. N., and Wasseur, F. W. (2003). Evolution of sociology freshmen into a friendship network. *Journal of Mathematical Sociology*, 27(2-3):153–191.

[Vaquera and Kao, 2008] Vaquera, E. and Kao, G. (2008). Do you like me as much as i like you? friendship reciprocity and its effects on school outcomes among adolescents. *Social Science Research*, 37(1):55–72.

[Veenhoven and Ehrhardt, 1995] Veenhoven, R. and Ehrhardt, J. (1995). The cross-national pattern of happiness: Test of predictions implied in three theories of happiness. *Social Indicators Research*, 34(1):33–68.

[Venkatesan, 1973] Venkatesan, M. (1973). Cognitive consistency and novelty seeking. *Consumer Behavior: Theoretical Sources*, pages 355–384.

[Verbrugge, 1977] Verbrugge, L. M. (1977). The structure of adult friendship choices. *Social Forces*, 56(2):576–597.

[Weber et al., 2002] Weber, E. U., Blais, A.-R., and Betz, N. E. (2002). A domain-specific risk-attitude scale: Measuring risk perceptions and risk behaviors. *Journal of Behavioral Decision Making*, 15:263–290.

[White, 1959] White, R. W. (1959). Motivation reconsidered: The concept of competence. *Psychological review*, 66(5):297.

[Willis, 2008] Willis, L. E. (2008). Against financial-literacy education. *Iowa Law Review*, 94:197.

[Won et al., 1969] Won, G. Y., Yamamura, D. S., and Ikeda, K. (1969). The relation of communication with parents and peers to deviant behavior of youth. *Journal of Marriage and the Family*, 43–47.

[Wright et al., 1986] Wright, J. C., Giammarino, M., and Parad, H. W. (1986). Social status in small groups: Individual–group similarity and the social" misfit.". *Journal of Personality and Social Psychology*, 50(3):523.

[Wright, 1984] Wright, P. H. (1984). Self-referent motivation and the intrinsic quality of friendship. *Journal of Social and Personal Relationships*, 1(1):115–130.

[Xiao and O'Neill, 2016] Xiao, J. J. and O'Neill, B. (2016). Consumer financial education and financial capability. *International Journal of Consumer Studies*, 40(6):712–721.

[Xie et al., 2002] Xie, H., Swift, D. J., Cairns, B. D., and Cairns, R. B. (2002). Aggressive behaviors in social interaction and developmental adaptation: A narrative analysis of interpersonal conflicts during early adolescence. *Social Development*, 11(2):205–224.

[Youn, 2005] Youn, S. (2005). Teenagers' perceptions of online privacy and coping behaviors: a risk–benefit appraisal approach. *Journal of Broadcasting & Electronic Media*, 49(1):86–110.

[Zaccaro et al., 1991] Zaccaro, S. J., Foti, R. J., and Kenny, D. A. (1991). Self-monitoring and trait-based variance in leadership: An investigation of leader flexibility across multiple group situations. *Journal of Applied Psychology*, 76(2):308.

Chapter 6

Appendix

6.1 Samples

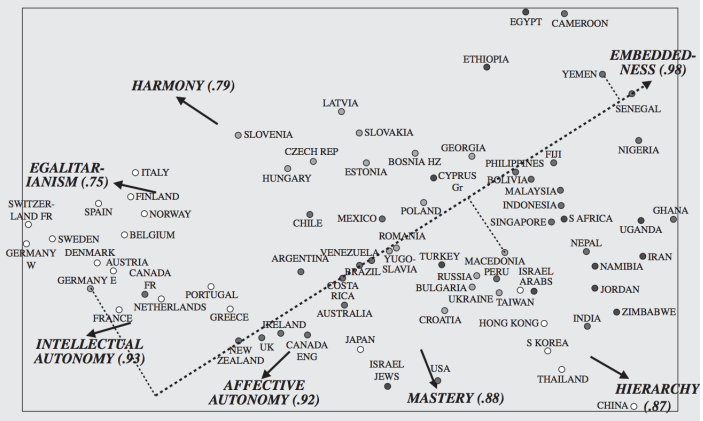

Figure 6.1: *Co-Plot Map of Nations on Cultural Orientations - Source: [Schwartz, 2006]*

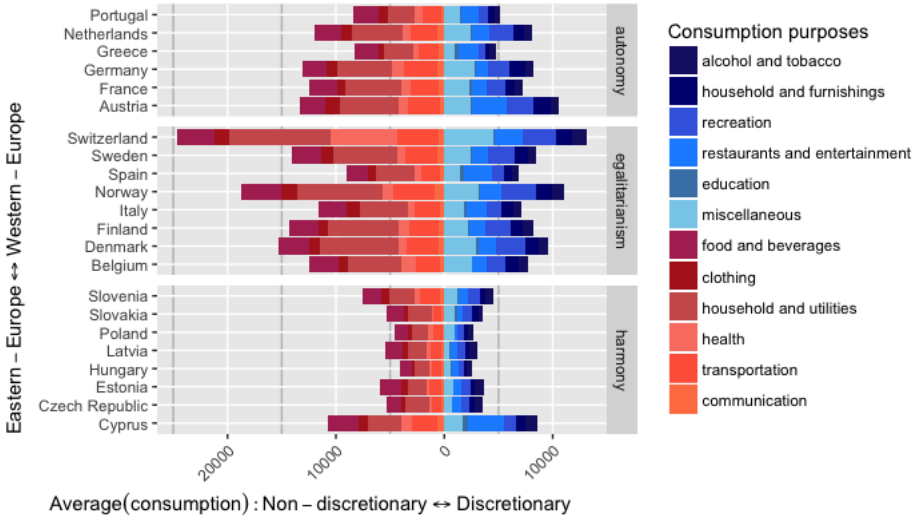

Figure 6.2: *Average consumption per household in European countries (data sources: [Bundesamt für Statistik, 2019], [European Statistics, 2019])*

6.2 Measures

6.2.1 Values

Swiss Version: Here we briefly describe different people. Please read each description and think about how much that person is or is not like you. Please put an X in the box to the right that shows how much the person described is like you.

It's important for him/her...

001.	**...to care for nature**	not like me at all □—□—□—□—□—□	very much like me
002.	**...to show that his/her performance is better than the performance of others**	□—□—□—□—□—□	
003.	**...to maintain traditional values and ways of thinking**	□—□—□—□—□—□	
004.	**.....to figure things out himself/herself**	□—□—□—□—□—□	
005.	**...be tolerant towards all kinds of people and groups**	□—□—□—□—□—□	
006.	**...to be wealthy**	□—□—□—□—□—□	
007.	**...to live in a strong state that can defend ist citizens**	□—□—□—□—□—□	
008.	**...to make all kinds of new experiences**	□—□—□—□—□—□	
009.	**...to be able to tell others what to do**	□—□—□—□—□—□	
010.	**...to obey all the laws**	□—□—□—□—□—□	
011.	**...to take care of every need of his/her close ones**	□—□—□—□—□—□	
012.	**...to have the freedom to choose what to do**	□—□—□—□—□—□	
013.	**...that everyone be treated justly**	□—□—□—□—□—□	

Polish Version: Here we briefly describe different people. Please read each description and think about how much that person is or is not like you. Please put an X in the box to the right that shows how much the person described is like you.

It's important for him/her...

001.	**...to care for nature**	not like me at all □—□—□—□—□—□	very much like me
002.	**...to show that his/her performance is better than the performance of others**	□—□—□—□—□—□	
003.	**...to maintain traditional values and ways of thinking**	□—□—□—□—□—□	
004.	**.....to figure things out himself/herself**	□—□—□—□—□—□	
005.	**...be tolerant towards all kinds of people and groups**	□—□—□—□—□—□	
006.	**...to live in a strong state that can defend ist citizens**	□—□—□—□—□—□	
007.	**...to make all kinds of new experiences**	□—□—□—□—□—□	
008.	**...to be able to tell others what to do**	□—□—□—□—□—□	
009.	**...to obey all the laws**	□—□—□—□—□—□	
010.	**...to take care of every need of his/her close ones**	□—□—□—□—□—□	
011.	**...to have the freedom to choose what to do**	□—□—□—□—□—□	

012. ...that everyone be treated justly	□—□—□—□—□—□
013. ...to be independent in shaping your views	□—□—□—□—□—□
014. ...that their country is stable and secure	□—□—□—□—□—□
015. ...to spend time for yourself	□—□—□—□—□—□
016. ...to avoid annoying others	□—□—□—□—□—□
017. ...that the weak and vulnerable in society are protected	□—□—□—□—□—□
018. ...that people do whatever you tell them	□—□—□—□—□—□
019. ...never to think that you deserve more than others	□—□—□—□—□—□
020. ...that no one ever be humbled	□—□—□—□—□—□
021. ...to always have something different to do	□—□—□—□—□—□
022. ...to take care of the people close to you	□—□—□—□—□—□
023. ...to have the power that money can buy	□—□—□—□—□—□
024. ...to avoid diseases and protect your health	□—□—□—□—□—□
025. ...never to violate rules or regulations	□—□—□—□—□—□
026. ...to make your own decisions about life	□—□—□—□—□—□
027. ...to be wealthy	□—□—□—□—□—□
028. ...that the people you know have full confidence in you	□—□—□—□—□—□
029. ...to take part in activities to protect nature	□—□—□—□—□—□
030. ...never to annoy nor irritate anyone	□—□—□—□—□—□
031. ...to protect your public image	□—□—□—□—□—□
032. ...to help people dear to you	□—□—□—□—□—□
033. ...to feel save and secure	□—□—□—□—□—□
034. ...to be a reliable and trustworthy friend	□—□—□—□—□—□
035. ...to take risks that make life more exciting	□—□—□—□—□—□
036. ...to have the power to make people do what you want	□—□—□—□—□—□
037. ...to be independent in planning your activities	□—□—□—□—□—□
038. ...to follow the rules even if no one watches	□—□—□—□—□—□
039. ...to be successful	□—□—□—□—□—□
040. ...to respect the customs of your family and your religion	□—□—□—□—□—□
041. ...to listen to and understand people that are different from you	□—□—□—□—□—□
042. ...to enjoy the pleasures of life	□—□—□—□—□—□
043. ...that everyone in the world have equal opportunities in life	□—□—□—□—□—□
044. ...to be modest	□—□—□—□—□—□
045. ...to figure things our yourself	□—□—□—□—□—□

046. ...to understand the traditional customs of your culture	□—□—□—□—□—□
047. ...to own expensive things that show your wealth	□—□—□—□—□—□
048. ...to protect the environment from destruction or pollution / contanmination	□—□—□—□—□—□
049. ...to have fun in any situation	□—□—□—□—□—□
050. ...that people appreciate your achievements	□—□—□—□—□—□
051. ...never to be humiliated	□—□—□—□—□—□
052. ...that your country can defend itself against all threats	□—□—□—□—□—□
053. ...never to annoy or anger anyone	□—□—□—□—□—□
054. ...to avoid anything that is dangerous	□—□—□—□—□—□
055. ...to be satisfied with what you have and not ask for more	□—□—□—□—□—□
056. ...that all his friends and family can rely on you completely	□—□—□—□—□—□
057. ...to accept people even if you disagree with them	□—□—□—□—□—□

6.2.2 Friendship Quality

How strong is your friendship with your classmates?

Please answer the question on the following scale.

1. I don't spend any of my spare time with him/her.
2. I hardly spend any of my spare time with him/her.
3. Occasionally, I spend some of my spare time with him/her.
4. I regularly spend some of my spare time with him/her.
5. I spend a lot of my spare time with him/her.
6. I practically spend every minute of my spare time with him/her.

001. classmate 1	no friendship at all	□—□—□—□—□—□	very close friendship
002. classmate 2		□—□—□—□—□—□	
003. classmate 3		□—□—□—□—□—□	

6.2.3 Advice Seeking Frequency

How many times have you approached your classmates to talk about school subjects or to ask for advice during the past three months?

Please answer the question on the following scale.

1. I have never approached him/her.
2. I approached him/her only once.
3. I approached him/her occasionally.
4. I approached him/her regularly.
5. I approached him/her on countless occasions.
6. I approached him/her everytime I needed advice.

001.	**classmate 1**	never □—□—□—□—□—□ constantly
002.	**classmate 2**	□—□—□—□—□—□
003.	**classmate 3**	□—□—□—□—□—□

6.2.4 Self-Control

Please indicate how much you agree with the following statements.

001.	**I have a hard time changing bad habits.**	don't agree at all □—□—□—□—□—□ totally agree
002.	**I get easily distracted.**	□—□—□—□—□—□
003.	**Sometimes I am saying inappropriate things.**	□—□—□—□—□—□
004.	**I reject things that are bad for me, even if they are fun.**	□—□—□—□—□—□
005.	**I can easily resist temptations.**	□—□—□—□—□—□
006.	**People would say that I have a distinctive self discipline.**	□—□—□—□—□—□
007.	**Fun and enjoyment are sometimes keeping me from finishing my work.**	□—□—□—□—□—□
008.	**I do things, which feel good at the moment, but which I regret later.**	□—□—□—□—□—□
009.	**Sometimes, I cannot keep myself from doing something, even when I know that it is wrong.**	□—□—□—□—□—□
010.	**I often act without thinking through all alternatives.**	□—□—□—□—□—□

6.2.5 Resilience

Please indicate how much you agree with the following statements.

001.	**I can easily adjust to changes.**	don't agree at all □—□—□—□—□—□ totally agree
002.	**I can deal with any situation that comes my way.**	□—□—□—□—□—□
003.	**I try to see the humorous side in every problem.**	□—□—□—□—□—□
004.	**Coping with stress makes me stronger.**	□—□—□—□—□—□
005.	**I tend to bounce back rapidly after sickness or difficult situations.**	□—□—□—□—□—□
006.	**I can reach goals irrespective of handicaps.**	□—□—□—□—□—□
007.	**I can stay focused under pressure.**	□—□—□—□—□—□
008.	**Defeat cannot bring me down.**	□—□—□—□—□—□
009.	**I think of myself as a strong person.**	□—□—□—□—□—□
010.	**I can deal with uncomfortable feelings.**	□—□—□—□—□—□

6.2.6 Social and Ethical Risks

For each of the following statements, please indicate the likelihood of engaging in the corresponding activities.

001.	**Admitting that your tastes are different from those of your friends.**	don't agree at all □—□—□—□—□—□ totally agree
002.	**To cheat at an exam.**	□—□—□—□—□—□

003. To argue with your friends about an issue, on which they have a very different opinion.	□—□—□—□—□—□
004. To submit someone else's work as your own.	□—□—□—□—□—□
005. To wear provocative clothing on occasion.	□—□—□—□—□—□
006. To forge somebody's signature.	□—□—□—□—□—□
007. To communicate a different opinion on an important topic your parents.	□—□—□—□—□—□
008. Not returning a wallet you found that contains 100 currency units.	□—□—□—□—□—□
009. To ask your parents for a higher allowance (adolescent version). To ask your boss for a raise (adult version).	□—□—□—□—□—□
010. Not telling your parents that you won in a lottery (adolescent version). Hiding money on your tax declaration (adult version).	□—□—□—□—□—□
011. Telling your friend that his/her significant other has made a pass at you.	□—□—□—□—□—□
012. Illegally copying a piece of software.	□—□—□—□—□—□
013. Prefer doing a task that you like over a more prestigious but less convenient task.	□—□—□—□—□—□
014. To steal an item from a shop.	□—□—□—□—□—□
015. To defend an unpopular position in which you believe at a social occasion.	□—□—□—□—□—□
016. To reveal a friend's secret to someone else.	□—□—□—□—□—□

6.2.7 Cooperation Decision Making

In the following tasks, you can actually win money. For each task, one pupil from your class is randomly chosen to receive money. In the first task you will be randomly assigned to someone else from another class. This person will remain unknown to you. You will also remain unknown to the other person. Your information will be used with complete confidentiality.

We ask you to make six decisions to allocate money between you and someone else. The points positioned above indicate what you keep to yourself and the points positioned below indicate what what you give to the other person. Please indicate for each question, which allocation you would prefer. For each question, you can only choose one allocation. There are no right or wrong answers, we are only interested in your personal preferences. In each class, one pair of matched pupils will be randomly chosen, and one of them will receive a payment according to the allocation decision of the peer assigned to them. If you are randomly chosen from your class, you will either be paid your chosen allocation or the allocation of your assigned person in another class determines your payment. Each point represents one Swiss Franc.

Please choose one financial resource allocation in each of the following scenarios.

001. Scenario 1	□—□—□—□—□—□—□—□—□—□—□
002. Scenario 2	□—□—□—□—□—□—□—□—□—□—□
003. Scenario 3	□—□—□—□—□—□—□—□—□—□—□
004. Scenario 4	□—□—□—□—□—□—□—□—□—□—□
005. Scenario 5	□—□—□—□—□—□—□—□—□—□—□
006. Scenario 6	□—□—□—□—□—□—□—□—□—□—□

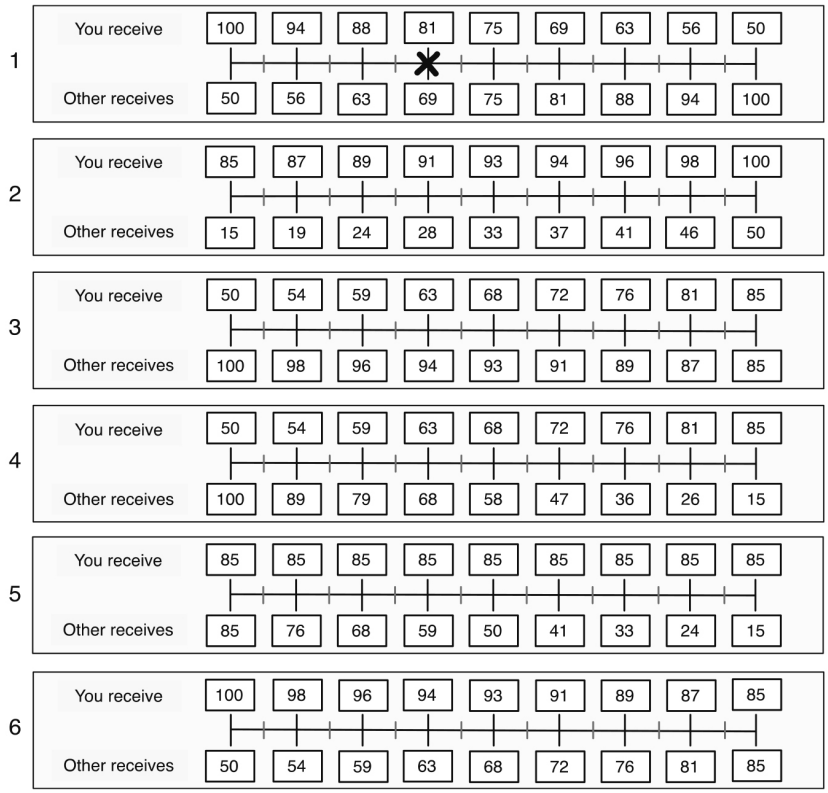

Figure 6.3: *Social value orientation slider measure, source: [Murphy and Ackermann, 2014]*

In the second task, you will be randomly assigned to two other pupils from different other classes. You will either be the "Sender" or the "Receiver". If you are randomly chosen as a Sender, you are endowed with 100 points, from which you can give any given amount to an unknown person from another class. We will call this person "Receiver B". If you are randomly chosen as a Receiver, you will receive an amount from another unknown person from a different class. We will call this person "SenderA". The following picture illustrates these possibilities. In the first section, you are asked which allocation you would find just, if you receive it from someone else or if you give it to someone else. Then you are asked how you would allocate the 100 points between you and someone else. In the last section, you are asked, what you expect to receive from another person and what you believe others will expect to receive from you. Each point represents half of one Swiss Franc.

Please indicate your chosen financial resource allocation in each of the following scenarios.

001. Scenario 1: What do you believe, a Sender should give?

I find it just to give the following amount
from 100 points to Receiver B □

002. Scenario 2: Please put yourself in the shoes of a Receiver. What percentage would you find just, if you receive it from the Sender?

I find it just to receive the following amount
from 100 points from Sender A □

003. Scenario 3: Now please put yourself in the shoes of the other Receiver. Which allocation do you believe, the Receiver expects from you?
If you estimate the answer of Receiver B in scenario 2 correctly within +/- 3 Points, you receive an additional 20 points.

I believe, Receiver B finds it just to receive the
following amount of 100 points from me. □

004. Scenario 4: What is your decision as a Sender?

I give the following amount of 100 points to Receiver B □

005. Scenario 5: Please imagine you are chosen as a Receiver. What would you expect that the Sender actually gives?
If you estimate the answer of Sender A in scenario 4 correctly within +/- 3 Points, you receive an additional 20 points.

I believe, Sender A will give me the following amount of 100 points. □

006. Scenario 6: Now please put yourself in the shoes of the other Receiver. Which allocation do you believe, the Receiver expects to actually receive from you?

I believe, Receiver B expects to receive the following amount of 100 points from me. □

6.2.8 Time Preferences

Imagine you are one of the selected winners in the lottery of the previous money allocation task and win the amount of money, which was assigned to you. We will visit your school in a few weeks to communicate the winners of the lottery, which are randomly selected from your class. There are two options, specifying the dates at which the payout transaction will be executed.

1. In the normal transaction option, the winnings will be paid out nine months after the communication of the lottery results.
2. In the fast transaction option, the winnings will be paid out immediately following the communication of the lottery results.

001. Please indicate the proportion of your winnings you would be willing to sacrifice in order to receive your payout immediately under the conditions of the fast transaction option. □

6.2.9 Financial Decision Making

Imagine you are one of the selected winners in the lottery of the previous money allocation task and win the amount of money, which was assigned to you. Please indicate the proportion of your winnings you would allocate to the following purposes.

1. Consumption: We will visit your school in a few weeks to communicate the winners of the lottery, which are randomly selected from your class. If you choose to allocate your winnings to spending, the corresponding amount will be paid out to you immediately at our next visit to your school.
2. Savings: If you choose to save your winnings, the amount will be pooled with all the amounts allocated to savings by randomly selected winners from other classes, and put in a savings account. Your deposited winnings are earning 1% interest and will be paid out to you in one year.
3. Donations: If you choose to donate your winnings, the amount will be pooled with all the amounts allocated to the same charitable organization by all randomly selected winners from other classes and paid our to the corresponding institution.
4. Other purposes: If you choose to allocate your winnings to other purposes, the corresponding amount will be paid out to you immediately at our next visit to your school.

001. Please indicate the percentage of your winnings you would allocate to the following categories. category 1 □—□—□—□ category 4

6.2.10 Financial Literacy

Please read through the following scenarios:
Scenario 1: Imagine that you are depositing 100 units in national currency into a savings account. The interest rate is 1%.
Scenario 2: Imagine that you are borrowing 100 units in national currency from a financial institution. The loan carries an interest rate of 1% and runs for one year.

Please choose one of the following options.

1. More
2. Less
3. Same amount
4. Don't know

001. How much money will you be able to withdraw in one year?	option 1 □—□—□—□ option 4
002. How much money will you need to pay back in one year?	option 1 □—□—□—□ option 4

6.2.11 Cognitive Capacities

Table 6.1: Grading Systems in Switzerland and Poland.

Subject	**School performance**	**Switzerland**		**Poland**	
		grade	points %	grade	points %
Mathematics	excellent	6	98-100	6	98-100
	very good	5.5	91-97	5	91-97
	good	5	81-90	4	75-90
	satisfactory	4.5	71-80		
	sufficient	4	61-70	3	51-74
	borderline	3.5	51-60		
	insufficient	3	41-50	2	35-50
	poor	2.5	31-40		
	very poor	2	21-30		
	none	1.5	11.20		
	absence	1	0-10	1	0-34
Linguistics	excellent	6	98-100	6	98-100
	very good	5.5	91-97	5	91-97
	good	5	81-90	4	75-90
	satisfactory	4.5	71-80		
	sufficient	4	61-70	3	51-74
	borderline	3.5	51-60		
	insufficient	3	41-50	2	35-50
	poor	2.5	31-40		
	very poor	2	21-30		
	none	1.5	11.20		
	absence	1	0-10	1	0-34

6.2.12 Life Satisfaction

Please indicate how much you agree with the following statement: All things considered, how satisfied are you with your life?

001.	not satisfied at all □—□—□—□—□—□—□—□—□—□—□—□—□ completely satisfied

6.3 Methodology

The following selection effects are used:

- *Outdegree* measures the average number of outgoing links, and can be compared to an intercept in regression analyses.
- *Reciprocity* $s_i^{net}(x) = \sum_j x_{ij}x_{ji}$ is the tendency of actors to reciprocate ties to each other.
- *cyclicality* $s_i^{net}(x) = \sum_{j=1}^{n} x_{ij}e^{\alpha}\{1-(1-e^{-\alpha})^{\sum_{h=1}^{n} x_{jh}x_{hi}}\}$ in its variation of geometrically weighted edgewise shared partners models situations in which a friend of a friend (an advisor of an advisor) nominates the focal actor as a friend (asks the focal actor for advice).
- *transitivity* $s_i^{net}(x) = \sum_{j=1}^{n} x_{ij}e^{\alpha}\{1-(1-e^{-\alpha})^{\sum_{h=1}^{n} x_{ih}x_{hj}}\}$ in its variation of geometrically weighted edgewise shared partners models situations, where a friend of a friend (an advisor of an advisor) is nominated by the focal actor as friend (is asked for advice by the focal actor).
- *Indegree popularity* $s_i^{net}(x) = \sum_j x_{ij}\sum_h x_{hj}$ controls for dispersion in indegrees and investigates if somebody who already has a lot of incoming ties is more popular as a target for further friendship nominations.
- *ego effects* $s_i^{net}(x) = v_i x_{i+}$ measure the tendency to initiate friendship- or advice relationship based on one's *value priorities, life satisfaction, money allocation priorities, self-control, resilience, social risks, ethical risks.*
- *alter effects* $s_i^{net}(x) = \sum_{j=1}^{n} x_{ij}v_j$ measure the tendency for peers to be popular as friends or advisors based on their *value priorities, life satisfaction, money allocation priorities, self-control, resilience, social risks, ethical risks.*
- *dyadic effects* $s_i^{net}(x) = \sum_{j=1}^{n} x_{ij}\{sim_{ij} - sim\}$ if $x_{i+} > 0$ or 0 if $x_{i+} = 0$, measure the tendency for peers to initiate friendship- or advice relationships with each other based on their similarity on *gender, age, value priorities, life satisfaction, money allocation priorities, self-control, resilience, social risks, ethical risks*, whereby $sim_{ij} = (1-(v_i - v_j)) * (v_{max} - v_{min})^{-1}$ and $sim = n^{-1}\sum_{i=1}^{n_i}\sum_{j=n_i+1}^{n}(1-(v_i-v_j)) * (v_{max}-v_{min})^{-1}$
- *transformation to advice* $s_i^{net}(x,w) = \sum_{j=1}^{n} x_{ij}w_{ij}$ measures the tendency to start asking one's friends for advice.
- *transformation to friendship* $s_i^{net}(w,x) = \sum_{j=1}^{n} x_{ij}w_{ij}$ measures the tendency to initiate friendships with one's advisors.

The following behavior effects are used:

- *Linear shape* $s_i^{val}(z) = z_i$ or $s_i^{beh}(z) = z_i$ effects control for the general tendency to change one's value- or money allocation priorities.
- *quadratic shape* $s_i^{val}(z) = z_i^2$ or $s_i^{beh}(z) = z_i^2$ effects measure the tendency to change value- or money allocation priorities depending on one's current priority on specific values or money allocations.
- *average similarity* $s_i^{val}(x,z) = x_{i+}^{-1}\sum_{j=1}^{n} x_{ij}\{sim_{ij} - sim\}$ or $s_i^{beh}(x,z) = x_{i+}^{-1}\sum_{j=1}^{n} x_{ij}\{sim_{ij} - sim\}$ if $x_{i+} > 0$ or 0 if $x_{i+} = 0$, measures the tendency to adapt one's value- or money allocation priorities to one's friends or advisors, whereby $sim_{ij} = (1-(v_i - v_j)) * (v_{max} - v_{min})^{-1}$ and $sim = n^{-1}\sum_{i=1}^{n_i}\sum_{j=n_i+1}^{n}(1-(v_i-v_j)) * (v_{max}-v_{min})^{-1}$
- *covariate effects* $s_i^{val}(x,z) = z_i v_i$ or $s_i^{beh}(x,z) = z_i v_i$ measure the main effects from one's *gender, life satisfaction, self-contol, resilience, financial literacy, mathematical ability, linguistic ability, and time preferences* on one's value- or money allocation priorities.
- *average alter covariate effects* $s_i^{val}(x,z) = z_i\sum_{h=1}^{n} x_{jh}v_h$ or $s_i^{beh}(x,z) = z_i\sum_{h=1}^{n} x_{jh}v_h$ if $x_{j+} > 0$ or 0 if $x_{j+} = 0$ measure the effects of the average expression of *gender, life satisfaction, self-contol, resilience, financial literacy, mathematical ability, linguistic ability, and time preferences* among one's friends or advisors on one's value- or money allocation priorities.

6.4 Results

6.4.1 Values in Friendship Networks

Table 6.2: **Self-transcendence values (stv)**

		value susceptibility		**value resistance**		**phase transition**	
effect	function	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p
friendship structure change:							
1st period	**rate**	8.072 0.583	*** [1 , 0]	7.560 0.632	*** [1 , 0]	7.795 0.658	*** [1 , 0]
2nd period	**rate**	7.250 0.425	*** [1 , 0]	6.632 0.437	*** [1 , 0]	7.539 0.679	*** [1 , 0]
density	**eval**	-1.961 0.084	*** [0 , 1]	-1.979 0.110	*** [0 , 1]	-1.916 0.111	*** [0 , 1]
reciprocity	**eval**	1.092 0.080	*** [1 , 0]	1.172 0.102	*** [1 , 0]	1.157 0.093	*** [1 , 0]
transitivity	**eval**	1.369 0.049	*** [1 , 0]	1.337 0.054	*** [1 , 0]	1.330 0.056	*** [1 , 0]
indegree popularity	**eval**	-0.111 0.014	*** [0 , 1]	-0.117 0.019	*** [0 , 1]	-0.121 0.018	*** [0 , 1]
gender based selection:							
same gender	**eval**	0.386 0.048	*** [1 , 0]	0.412 0.059	*** [1 , 0]	0.383 0.046	*** [1 , 0]
value based selection:							
stv alter	eval	-0.035 0.028	 [0.145 , 0.97]	-0.020 0.035	 [0.415 , 0.846]		
stv ego	**eval**	-0.071 0.035	* [0.001 , 0.886]	-0.076 0.035	* [0.043 , 0.973]		
stv similarity	eval	0.184 0.151	 [0.955 , 0.136]	0.113 0.174	 [0.848 , 0.365]		
stv alter	endow					-0.000 0.074	 [0.797 , 0.776]
stv ego	endow					0.326 0.440	 [0.416 , 0.102]
stv similarity	endow					-0.064 0.460	 [0.775 , 0.763]
stv alter	create					0.018 0.070	 [0.657 , 0.598]
stv ego	create					-0.380 0.458	 [0.067 , 0.446]
stv similarity	create					0.125 0.427	 [0.763 , 0.695]
self-transcendence change:							
1st period	**rate**	1.401 0.142	*** [1 , 0]	4.666 2.461	† [1 , 0]	1.380 0.159	*** [1 , 0]
2nd period	**rate**	1.138 0.117	*** [1 , 0]	1.119 0.136	*** [1 , 0]	1.150 0.134	*** [1 , 0]
linear	**eval**	0.242 0.037	*** [1 , 0]	0.309 0.053	*** [1 , 0]	0.279 0.045	*** [1 , 0]
quadratic	**eval**			-0.266 0.045	*** [0 , 1]		
average similarity	**eval**	2.482 0.401	*** [1 , 0]			2.019 0.431	*** [1 , 0]
effect from gender	**eval**	0.302 0.076	*** [1 , 0.002]			0.266 0.089	*** [1 , 0.026]
average alter gender	**eval**			0.526 0.181	*** [1 , 0.022]		
goodness of fit:		μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]
GOF (outdegree)		0.319 0.295	*** [58 / 46]	0.318 0.308	*** [55 / 39]	0.338 0.287	*** [46 / 36]
GOF (behavior)		0.554 0.290	*** [58 / 55]	0.601 0.348	*** [55 / 50]	0.556 0.305	*** [46 / 43]

$^{***}p < 0.01$, $^{**}0.01 < p < 0.05$, $^{*}0.05 < p < 0.1$, $^{\dagger}p < 0.1$

Table 6.3: **Conservation values (cov)**

effect	function	value susceptibility μ_θ σ_θ	 fisher's p fisher's [l,r] p	value resistance μ_θ σ_θ	 fisher's p fisher's [l,r] p	phase transition μ_θ σ_θ	 fisher's p fisher's [l,r] p
friendship structure change:							
1st period	**rate**	7.501 0.537	*** [1 , 0]	6.915 0.507	*** [1 , 0]	7.232 0.650	*** [1 , 0]
2nd period	**rate**	7.340 0.369	*** [1 , 0]	6.923 0.355	*** [1 , 0]	8.274 0.666	*** [1 , 0]
density	**eval**	-1.975 0.082	*** [0 , 1]	-1.990 0.092	*** [0 , 1]	-2.096 0.121	*** [0 , 1]
reciprocity	**eval**	1.152 0.077	*** [1 , 0]	1.226 0.080	*** [1 , 0]	1.261 0.086	*** [1 , 0]
transitivity	**eval**	1.303 0.045	*** [1 , 0]	1.332 0.045	*** [1 , 0]	1.369 0.055	*** [1 , 0]
indegree popularity	**eval**	-0.096 0.014	*** [0 , 1]	-0.108 0.015	*** [0 , 1]	-0.116 0.019	*** [0 , 1]
gender based selection:							
same gender	**eval**	0.390 0.049	*** [1 , 0]	0.395 0.049	*** [1 , 0]	0.434 0.062	*** [1 , 0]
value based selection:							
cov alter	**eval**	-0.052 0.026	† [0.036 , 0.986]	-0.030 0.030	 [0.179 , 0.903]		
cov ego	eval	0.042 0.035	 [0.644 , 0.011]	0.039 0.041	 [0.62 , 0.029]		
cov similarity	eval	0.158 0.178	 [0.845 , 0.468]	0.179 0.209	 [0.819 , 0.423]		
cov alter	endow					-0.103 0.073	 [0.486 , 0.763]
cov ego	endow					-0.178 0.495	 [0.18 , 0.48]
cov similarity	**endow**					1.037 0.609	† [0.986 , 0.2]
cov alter	create					0.039 0.065	 [0.547 , 0.833]
cov ego	create					0.372 0.449	 [0.622 , 0.081]
cov similarity	create					-0.598 0.559	 [0.385 , 0.937]
conservation change:							
1st period	**rate**	1.707 0.142	*** [1 , 0]	1.741 0.153	*** [1 , 0]	1.673 0.162	*** [1 , 0]
2nd period	**rate**	1.381 0.163	*** [1 , 0]	1.268 0.166	*** [1 , 0]	1.277 0.177	*** [1 , 0]
linear	**eval**	0.133 0.029	*** [1 , 0]	0.156 0.032	*** [1 , 0]	0.111 0.037	*** [1 , 0.014]
quadratic	**eval**			-0.242 0.024	*** [0 , 1]		
average similarity	**eval**	2.946 0.312	*** [1 , 0]			3.101 0.408	*** [1 , 0]
effect from gender	eval	0.084 0.057	 [0.917 , 0.18]			0.119 0.075	 [0.978 , 0.148]
average alter gender	eval			-0.024 0.107	 [0.487 , 0.654]		
goodness of fit:		μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]
GOF (outdegree)		0.351 0.299	*** [57 / 44]	0.342 0.305	*** [54 / 41]	0.354 0.309	*** [40 / 29]
GOF (behavior)		0.653 0.256	*** [57 / 56]	0.668 0.316	*** [54 / 52]	0.642 0.260	*** [40 / 40]

$^{***}p < 0.01$, $^{**}0.01 < p < 0.05$, $^{*}0.05 < p < 0.1$, $^{\dagger}p < 0.1$

Table 6.4: **Self-enhancement values (sev)**

effect	function	value susceptibility		value resistance		phase transition	
		μ_θ	fisher's p	μ_θ	fisher's p	μ_θ	fisher's p
		σ_θ	fisher's [l,r] p	σ_θ	fisher's [l,r] p	σ_θ	fisher's [l,r] p
friendship structure change:							
1st period	**rate**	7.549	***	6.986	***	6.987	***
		0.494	[1 , 0]	0.458	[1 , 0]	0.565	[1 , 0]
2nd period	**rate**	7.270	***	6.967	***	7.381	***
		0.411	[1 , 0]	0.417	[1 , 0]	0.564	[1 , 0]
density	**eval**	-1.967	***	-1.944	***	-1.979	***
		0.074	[0 , 1]	0.082	[0 , 1]	0.106	[0 , 1]
reciprocity	**eval**	1.120	***	1.190	***	1.207	***
		0.075	[1 , 0]	0.076	[1 , 0]	0.079	[1 , 0]
transitivity	**eval**	1.329	***	1.345	***	1.329	***
		0.043	[1 , 0]	0.046	[1 , 0]	0.057	[1 , 0]
indegree popularity	**eval**	-0.099	***	-0.105	***	-0.101	***
		0.012	[0 , 1]	0.012	[0 , 1]	0.015	[0 , 1]
gender based selection:							
same gender	**eval**	0.398	***	0.381	***	0.394	***
		0.045	[1 , 0]	0.046	[1 , 0]	0.057	[1 , 0]
value based selection:							
sev alter	**eval**	-0.034		-0.048	†		
		0.022	[0.026 , 0.947]	0.027	[0.016 , 0.969]		
sev ego	eval	0.023		0.030			
		0.023	[0.541 , 0.041]	0.027	[0.753 , 0.036]		
sev similarity	**eval**	0.243	†	0.202			
		0.133	[0.981 , 0.044]	0.156	[0.941 , 0.087]		
sev alter	**endow**					-0.141	†
						0.073	[0.037 , 0.959]
sev ego	endow					-0.282	
						0.461	[0.012 , 0.088]
sev similarity	**endow**					0.883	†
						0.501	[0.961 , 0.181]
sev alter	create					0.007	
						0.055	[0.63 , 0.796]
sev ego	create					0.402	
						0.452	[0.13 , 0.004]
sev similarity	create					-0.133	
						0.475	[0.52 , 0.862]
self-enhancement change:							
1st period	**rate**	1.473	***	1.413	***	1.431	***
		0.110	[1 , 0]	0.117	[1 , 0]	0.125	[1 , 0]
2nd period	**rate**	1.448	***	1.428	***	1.383	***
		0.116	[1 , 0]	0.126	[1 , 0]	0.130	[1 , 0]
linear	**eval**	0.072	*	0.105	***	0.088	*
		0.028	[1 , 0.005]	0.032	[1 , 0.001]	0.035	[0.999 , 0.006]
quadratic	**eval**			-0.179	***		
				0.022	[0 , 1]		
average similarity	**eval**	1.912	***			1.580	***
		0.291	[1 , 0]			0.348	[1 , 0]
effect from gender	**eval**	-0.126	*			-0.122	†
		0.055	[0.04 , 1]			0.069	[0.039 , 0.996]
average alter gender	**eval**			-0.301	**		
				0.111	[0.027 , 1]		
goodness of fit:		μ_p	χ^2 test	μ_p	χ^2 test	μ_p	χ^2 test
		σ_p	[converge / fit]	σ_p	[converge / fit]	σ_p	[converge / fit]
GOF (outdegree)		0.328	***	0.329	***	0.294	***
		0.283	[63 / 50]	0.294	[60 / 44]	0.282	[46 / 34]
GOF (behavior)		0.670	***	0.695	***	0.681	***
		0.234	[63 / 63]	0.276	[60 / 60]	0.249	[46 / 46]

$^{***}p < 0.01$, $^{**}0.01 < p < 0.05$, $^{*}0.05 < p < 0.1$, $^{\dagger}p < 0.1$

Table 6.5: **Openness to change values (opv)**

effect	function	**value susceptibility** μ_θ / σ_θ	fisher's p / fisher's [l,r] p	**value resistance** μ_θ / σ_θ	fisher's p / fisher's [l,r] p	**phase transition** μ_θ / σ_θ	fisher's p / fisher's [l,r] p
friendship structure change:							
1st period	**rate**	7.148 0.513	*** [1 , 0]	6.575 0.512	*** [1 , 0]	6.879 0.583	*** [1 , 0]
2nd period	**rate**	6.787 0.417	*** [1 , 0]	6.610 0.445	*** [1 , 0]	7.397 0.876	*** [1 , 0]
density	**eval**	-1.880 0.081	*** [0 , 1]	-1.907 0.092	*** [0 , 1]	-1.878 0.103	*** [0 , 1]
reciprocity	**eval**	1.152 0.084	*** [1 , 0]	1.193 0.101	*** [1 , 0]	1.223 0.105	*** [1 , 0]
transitivity	**eval**	1.330 0.046	*** [1 , 0]	1.355 0.048	*** [1 , 0]	1.337 0.054	*** [1 , 0]
indegree popularity	**eval**	-0.121 0.015	*** [0 , 1]	-0.130 0.018	*** [0 , 1]	-0.127 0.018	*** [0 , 1]
gender based selection:							
same gender	**eval**	0.403 0.046	*** [1 , 0]	0.428 0.045	*** [1 , 0]	0.412 0.046	*** [1 , 0]
value based selection:							
opv alter	**eval**	-0.078 0.035	* [0.112 , 0.944]	-0.069 0.041	† [0.177 , 0.952]		
opv ego	eval	-0.063 0.041	 [0.017 , 0.834]	-0.036 0.048	 [0.188 , 0.674]		
opv similarity	**eval**	0.300 0.172	. [0.992 , 0.133]	0.425 0.206	* [0.995 , 0.074]		
opv alter	endow					-0.049 0.098	 [0.505 , 0.946]
opv ego	endow					0.565 0.621	 [0.458 , 0.019]
opv similarity	endow					0.389 0.585	 [0.966 , 0.523]
opv alter	create					0.011 0.099	 [0.799 , 0.694]
opv ego	create					-0.769 0.635	 [0.005 , 0.614]
opv similarity	create					0.185 0.608	 [0.738 , 0.673]
openness change:							
1st period	**rate**	1.481 0.128	*** [1 , 0]	1.468 0.141	*** [1 , 0]	1.394 0.143	*** [1 , 0]
2nd period	**rate**	0.864 0.103	*** [1 , 0]	0.943 0.121	*** [1 , 0]	0.826 0.114	*** [1 , 0]
linear	**eval**	0.232 0.038	*** [1 , 0]	0.285 0.050	*** [1 , 0]	0.242 0.051	*** [1 , 0]
quadratic	**eval**			-0.273 0.047	*** [0 , 1]		
average similarity	**eval**	2.293 0.351	*** [1 , 0]			2.126 0.456	*** [1 , 0]
effect from gender	**eval**	0.150 0.074	* [0.987 , 0.212]			0.129 0.099	 [0.938 , 0.334]
average alter gender	eval			0.240 0.161	 [0.967 , 0.194]		
goodness of fit:		μ_p / σ_p	χ^2 test / [converge / fit]	μ_p / σ_p	χ^2 test / [converge / fit]	μ_p / σ_p	χ^2 test / [converge / fit]
GOF (outdegree)		0.333 0.310	*** [57 / 44]	0.341 0.316	*** [47 / 36]	0.337 0.302	*** [40 / 30]
GOF (behavior)		0.673 0.269	*** [57 / 56]	0.755 0.278	*** [47 / 46]	0.676 0.267	*** [40 / 39]

$^{***}p < 0.01$, $^{**}0.01 < p < 0.05$, $^{*}0.05 < p < 0.1$, $^{\dagger}p < 0.1$

Table 6.6: **Self-transcendence values (stv) and gender**

effect	function	value susceptibility		value resistance		phase transition	
		μ_θ	fisher's p	μ_θ	fisher's p	μ_θ	fisher's p
		σ_θ	fisher's [l,r] p	σ_θ	fisher's [l,r] p	σ_θ	fisher's [l,r] p
friendship structure change:							
1st period	**rate**	7.771	***	7.649	***	7.673	***
		0.572	[1 , 0]	0.661	[1 , 0]	0.680	[1 , 0]
2nd period	**rate**	7.015	***	6.648	***	7.432	***
		0.430	[1 , 0]	0.432	[1 , 0]	0.660	[1 , 0]
density	**eval**	-1.956	***	-1.909	***	-1.916	***
		0.096	[0 , 1]	0.116	[0 , 1]	0.120	[0 , 1]
reciprocity	**eval**	1.116	***	1.159	***	1.172	***
		0.086	[1 , 0]	0.097	[1 , 0]	0.098	[1 , 0]
transitivity	**eval**	1.348	***	1.342	***	1.345	***
		0.050	[1 , 0]	0.056	[1 , 0]	0.057	[1 , 0]
indegree popularity	**eval**	-0.107	***	-0.119	***	-0.125	***
		0.015	[0 , 1]	0.018	[0 , 1]	0.019	[0 , 1]
gender based selection:							
same gender	**eval**	0.391	***	0.357	***		
		0.055	[1 , 0]	0.067	[1 , 0]		
same gender	endow					0.125	
						0.127	[0.816 , 0.122]
same gender	**create**					0.685	***
						0.091	[1 , 0]
gender value interaction:							
I(gender*stv similarity)	eval	0.019		-0.113			
		0.320	[0.719 , 0.749]	0.350	[0.751 , 0.912]		
value based selection:							
stv alter	eval	-0.024		-0.030			
		0.030	[0.303 , 0.923]	0.033	[0.444 , 0.898]		
stv ego	**eval**	-0.063	*	-0.080	*		
		0.029	[0.011 , 0.959]	0.040	[0.01 , 0.933]		
stv similarity	eval	0.099		0.205			
		0.235	[0.949 , 0.638]	0.260	[0.933 , 0.438]		
stv alter	endow					0.003	
						0.078	[0.867 , 0.777]
stv ego	endow					-0.125	
						0.497	[0.088 , 0.393]
stv similarity	endow					0.005	
						0.454	[0.768 , 0.677]
stv alter	create					-0.000	
						0.073	[0.712 , 0.727]
stv ego	create					0.036	
						0.503	[0.267 , 0.153]
stv similarity	create					0.169	
						0.444	[0.819 , 0.691]
self-transcendence change:							
1st period	**rate**	1.381	***	1.347	***	1.341	***
		0.137	[1 , 0]	0.152	[1 , 0]	0.155	[1 , 0]
2nd period	**rate**	1.189	***	0.990	***	1.174	***
		0.123	[1 , 0]	0.114	[1 , 0]	0.139	[1 , 0]
linear	**eval**	0.262	***	0.333	***	0.276	***
		0.038	[1 , 0]	0.055	[1 , 0]	0.047	[1 , 0]
quadratic	**eval**			-0.253	***		
				0.045	[0 , 1]		
average similarity	**eval**	2.320	***			2.195	***
		0.403	[1 , 0]			0.449	[1 , 0]
effect from gender	**eval**	0.341	***			0.291	***
		0.079	[1 , 0.001]			0.088	[1 , 0.011]
average alter gender	**eval**			0.581	***		
				0.195	[1 , 0.032]		
goodness of fit:		μ_p	χ^2 test	μ_p	χ^2 test	μ_p	χ^2 test
		σ_p	[converge / fit]	σ_p	[converge / fit]	σ_p	[converge / fit]
GOF (outdegree)		0.317	***	0.328	***	0.313	***
		0.290	[56 / 42]	0.307	[53 / 40]	0.282	[43 / 33]
GOF (behavior)		0.547	***	0.585	***	0.568	***
		0.291	[56 / 54]	0.349	[53 / 48]	0.281	[43 / 42]

$^{***}p < 0.01$, $^{**}0.01 < p < 0.05$, $^{*}0.05 < p < 0.1$, $^{\dagger}p < 0.1$

Table 6.7: **Conservation values (cov) and gender**

effect	function	value susceptibility μ_θ σ_θ	 fisher's p fisher's [l,r] p	value resistance μ_θ σ_θ	 fisher's p fisher's [l,r] p	phase transition μ_θ σ_θ	 fisher's p fisher's [l,r] p
friendship structure change:							
1st period	**rate**	7.245 0.539	*** [1 , 0]	6.740 0.539	*** [1 , 0]	8.328 0.799	*** [1 , 0]
2nd period	**rate**	7.411 0.379	*** [1 , 0]	6.855 0.385	*** [1 , 0]	8.757 0.740	*** [1 , 0]
density	**eval**	-1.919 0.093	*** [0 , 1]	-2.005 0.119	*** [0 , 1]	-2.098 0.106	*** [0 , 1]
reciprocity	**eval**	1.179 0.077	*** [1 , 0]	1.220 0.090	*** [1 , 0]	1.163 0.072	*** [1 , 0]
transitivity	**eval**	1.368 0.049	*** [1 , 0]	1.361 0.052	*** [1 , 0]	1.359 0.057	*** [1 , 0]
indegree popularity	**eval**	-0.107 0.014	*** [0 , 1]	-0.106 0.016	*** [0 , 1]	-0.110 0.018	*** [0 , 1]
gender based selection:							
same gender	**eval**	0.345 0.044	*** [1 , 0]	0.387 0.062	*** [1 , 0]		
same gender	**endow**					0.435 0.179	* [0.949 , 0]
same gender	**create**					0.487 0.136	*** [0.991 , 0]
gender value interaction:							
I(gender*cov similarity)	**eval**	-0.743 0.401	† [0.177 , 0.948]	-0.618 0.449	 [0.383 , 0.866]		
value based selection:							
cov alter	**eval**	-0.074 0.033	* [0.008 , 0.992]	-0.025 0.033	 [0.252 , 0.882]		
cov ego	eval	0.019 0.032	 [0.597 , 0.117]	0.020 0.042	 [0.641 , 0.138]		
cov similarity	eval	0.490 0.316	 [0.929 , 0.371]	0.448 0.353	 [0.845 , 0.606]		
cov alter	**endow**					-0.123 0.072	† [0.361 , 0.818]
cov ego	endow					-0.376 0.476	 [0.006 , 0.321]
cov similarity	endow					0.388 0.559	 [0.858 , 0.697]
cov alter	create					0.021 0.063	 [0.646 , 0.889]
cov ego	create					0.520 0.416	 [0.626 , 0.005]
cov similarity	create					-0.082 0.541	 [0.661 , 0.772]
conservation change:							
1st period	**rate**	1.649 0.130	*** [1 , 0]	1.700 0.153	*** [1 , 0]	1.607 0.154	*** [1 , 0]
2nd period	**rate**	1.344 0.157	*** [1 , 0]	3.980 1.402	*** [1 , 0]	1.247 0.161	*** [1 , 0]
linear	**eval**	0.130 0.030	*** [1 , 0]	0.143 0.035	*** [1 , 0.001]	0.120 0.036	*** [1 , 0.004]
quadratic	**eval**			-0.260 0.026	*** [0 , 1]		
average similarity	**eval**	3.083 0.320	*** [1 , 0]			2.912 0.386	*** [1 , 0]
effect from gender	eval	0.092 0.058	 [0.952 , 0.146]			0.036 0.072	 [0.697 , 0.489]
average alter gender	eval			-0.021 0.113	 [0.549 , 0.63]		
goodness of fit:		μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]
GOF (outdegree)		0.349 0.308	*** [56 / 45]	0.353 0.320	*** [53 / 40]	0.364 0.319	*** [39 / 31]
GOF (behavior)		0.654 0.257	*** [56 / 56]	0.671 0.320	*** [53 / 51]	0.654 0.278	*** [39 / 38]

$^{***}p < 0.01$, $^{**}0.01 < p < 0.05$, $^{*}0.05 < p < 0.1$, $^{\dagger}p < 0.1$

Table 6.8: **Self-enhancement values (sev) and gender**

effect	function	value susceptibility μ_θ σ_θ	 fisher's p fisher's [l,r] p	value resistance μ_θ σ_θ	 fisher's p fisher's [l,r] p	phase transition μ_θ σ_θ	 fisher's p fisher's [l,r] p
friendship structure change:							
1st period	**rate**	7.319 0.492	*** [1 , 0]	7.143 0.506	*** [1 , 0]	7.764 0.716	*** [1 , 0]
2nd period	**rate**	6.779 0.402	*** [1 , 0]	6.481 0.357	*** [1 , 0]	7.673 0.613	*** [1 , 0]
density	**eval**	-1.961 0.090	*** [0 , 1]	-1.949 0.102	*** [0 , 1]	-2.040 0.097	*** [0 , 1]
reciprocity	**eval**	1.115 0.084	*** [1 , 0]	1.143 0.089	*** [1 , 0]	1.212 0.085	*** [1 , 0]
transitivity	**eval**	1.358 0.049	*** [1 , 0]	1.369 0.052	*** [1 , 0]	1.387 0.057	*** [1 , 0]
indegree popularity	**eval**	-0.100 0.013	*** [0 , 1]	-0.104 0.014	*** [0 , 1]	-0.111 0.015	*** [0 , 1]
gender based selection:							
same gender	**eval**	0.373 0.056	*** [1 , 0]	0.364 0.058	*** [1 , 0]		
same gender	**endow**					0.393 0.166	* [0.887 , 0]
same gender	**create**					0.458 0.137	*** [0.986 , 0]
gender value interaction:							
I(gender*sev similarity)	eval	-0.135 0.305	 [0.27 , 0.781]	-0.148 0.336	 [0.296 , 0.866]		
value based selection:							
sev alter	eval	-0.028 0.024	 [0.093 , 0.881]	-0.030 0.028	 [0.084 , 0.858]		
sev ego	eval	0.016 0.025	 [0.48 , 0.133]	0.017 0.028	 [0.552 , 0.1]		
sev similarity	eval	0.187 0.232	 [0.967 , 0.349]	0.214 0.258	 [0.991 , 0.331]		
sev alter	endow					-0.099 0.075	 [0.118 , 0.852]
sev ego	endow					0.039 0.466	 [0.08 , 0.02]
sev similarity	endow					0.618 0.513	 [0.93 , 0.284]
sev alter	create					-0.004 0.056	 [0.478 , 0.827]
sev ego	create					0.106 0.439	 [0.035 , 0.031]
sev similarity	create					0.028 0.458	 [0.733 , 0.779]
self-enhancement change:							
1st period	**rate**	1.422 0.111	*** [1 , 0]	1.431 0.121	*** [1 , 0]	1.389 0.122	*** [1 , 0]
2nd period	**rate**	1.427 0.119	*** [1 , 0]	1.427 0.130	*** [1 , 0]	1.439 0.139	*** [1 , 0]
linear	**eval**	0.080 0.029	** [1 , 0.005]	0.109 0.034	*** [1 , 0.003]	0.074 0.035	* [0.998 , 0.012]
quadratic	**eval**			-0.168 0.022	*** [0 , 1]		
average similarity	**eval**	1.666 0.311	*** [1 , 0]			1.643 0.353	*** [1 , 0]
effect from gender	**eval**	-0.129 0.058	* [0.04 , 0.999]			-0.116 0.068	† [0.059 , 0.996]
avg alter gender	**eval**			-0.324 0.119	** [0.033 , 1]		
goodness of fit:		μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]
GOF (outdegree)		0.303 0.273	*** [60 / 46]	0.300 0.280	*** [57 / 43]	0.305 0.284	*** [47 / 35]
GOF (behavior)		0.646 0.240	*** [60 / 60]	0.668 0.284	*** [57 / 57]	0.676 0.246	*** [47 / 47]

$^{***}p < 0.01$, $^{**}0.01 < p < 0.05$, $^{*}0.05 < p < 0.1$, $^{\dagger}p < 0.1$

Table 6.9: **Openness to change values (opv) and gender**

effect	function	value susceptibility		value resistance		phase transition	
		μ_θ	fisher's p	μ_θ	fisher's p	μ_θ	fisher's p
		σ_θ	fisher's [l,r] p	σ_θ	fisher's [l,r] p	σ_θ	fisher's [l,r] p
friendship structure change:							
1st period	**rate**	7.214	***	6.585	***	6.927	***
		0.541	[1 , 0]	0.542	[1 , 0]	0.618	[1 , 0]
2nd period	**rate**	6.778	***	6.651	***	7.739	***
		0.426	[1 , 0]	0.469	[1 , 0]	0.868	[1 , 0]
density	**eval**	-1.925	***	-1.991	***	-1.845	***
		0.095	[0 , 1]	0.098	[0 , 1]	0.098	[0 , 1]
reciprocity	**eval**	1.127	***	1.171	***	1.228	***
		0.088	[1 , 0]	0.104	[1 , 0]	0.105	[1 , 0]
transitivity	**eval**	1.328	***	1.374	***	1.390	***
		0.052	[1 , 0]	0.054	[1 , 0]	0.064	[1 , 0]
indegree popularity	**eval**	-0.118	***	-0.124	***	-0.139	***
		0.014	[0 , 1]	0.018	[0 , 1]	0.020	[0 , 1]
gender based selection:							
same gender	**eval**	0.404	***	0.460	***		
		0.054	[1 , 0]	0.060	[1 , 0]		
same gender	endow					0.305	
						0.186	[0.81 , 0]
same gender	**create**					0.556	***
						0.146	[0.992 , 0]
gender value interaction:							
I(gender*opv similarity)	**eval**	0.528		0.746	†		
		0.326	[0.951 , 0.349]	0.401	[0.972 , 0.16]		
value based selection:							
opv alter	**eval**	-0.086	*	-0.075	†		
		0.035	[0.077 , 0.97]	0.042	[0.148 , 0.96]		
opv ego	eval	-0.053		-0.037			
		0.040	[0.057 , 0.86]	0.049	[0.267 , 0.694]		
opv similarity	eval	-0.110		-0.185			
		0.265	[0.85 , 0.807]	0.320	[0.72 , 0.882]		
opv alter	endow					-0.099	
						0.100	[0.307 , 0.965]
opv ego	endow					0.420	
						0.605	[0.493 , 0.036]
opv similarity	endow					0.069	
						0.572	[0.913 , 0.69]
opv alter	create					-0.027	
						0.095	[0.67 , 0.679]
opv ego	create					-0.526	
						0.610	[0.018 , 0.567]
opv similarity	create					0.566	
						0.571	[0.916 , 0.459]
openness change:							
1st period	**rate**	1.469	***	1.471	***	1.333	***
		0.125	[1 , 0]	0.147	[1 , 0]	0.137	[1 , 0]
2nd period	**rate**	0.846	***	0.941	***	0.854	***
		0.101	[1 , 0]	0.125	[1 , 0]	0.117	[1 , 0]
linear	**eval**	0.237	***	0.301	***	0.256	***
		0.040	[1 , 0]	0.050	[1 , 0]	0.051	[1 , 0]
quadratic	**eval**			-0.231	***		
				0.043	[0 , 1]		
average similarity	**eval**	2.310	***			2.010	***
		0.362	[1 , 0]			0.452	[1 , 0]
effect from gender	**eval**	0.143	†			0.146	
		0.076	[0.977 , 0.217]			0.098	[0.97 , 0.266]
avg alter gender	eval			0.176			
				0.170	[0.905 , 0.248]		
goodness of fit:		μ_p	χ^2 test	μ_p	χ^2 test	μ_p	χ^2 test
		σ_p	[converge / fit]	σ_p	[converge / fit]	σ_p	[converge / fit]
GOF (outdegree)		0.318	***	0.308	***	0.338	***
		0.290	[54 / 42]	0.298	[46 / 34]	0.304	[38 / 29]
GOF (behavior)		0.676	***	0.739	***	0.669	***
		0.271	[54 / 53]	0.305	[46 / 44]	0.273	[38 / 37]

$^{***}p < 0.01$, $^{**}0.01 < p < 0.05$, $^{*}0.05 < p < 0.1$, $^{\dagger}p < 0.1$

Table 6.10: **Self-transcendence values (stv) and life satisfaction**

effect	function	value susceptibility		value resistance		phase transition	
		μ_θ	fisher's p	μ_θ	fisher's p	μ_θ	fisher's p
		σ_θ	fisher's [l,r] p	σ_θ	fisher's [l,r] p	σ_θ	fisher's [l,r] p
friendship structure change:							
1st period	**rate**	7.017	***	6.842	***	7.804	***
		0.583	[1 , 0]	0.683	[1 , 0]	0.679	[1 , 0]
2nd period	**rate**	7.017	***	6.321	***	7.130	***
		0.410	[1 , 0]	0.389	[1 , 0]	0.689	[1 , 0]
density	**eval**	-1.742	***	-1.661	***	-1.720	***
		0.092	[0 , 1]	0.108	[0 , 1]	0.108	[0 , 1]
reciprocity	**eval**	1.336	***	1.415	***	1.353	***
		0.085	[1 , 0]	0.097	[1 , 0]	0.085	[1 , 0]
transitivity	**eval**	1.438	***	1.412	***	1.466	***
		0.053	[1 , 0]	0.057	[1 , 0]	0.057	[1 , 0]
indegree popularity	**eval**	-0.157	***	-0.174	***	-0.162	***
		0.021	[0 , 1]	0.026	[0 , 1]	0.020	[0 , 1]
satisfaction based selection:							
satisfaction similarity	**eval**	0.307	***	0.429	***		
		0.089	[0.998 , 0.014]	0.113	[1 , 0.006]		
satisfaction similarity	endow					0.147	
						0.238	[0.742 , 0.264]
satisfaction similarity	**create**					0.334	†
						0.205	[0.944 , 0.062]
satisfaction value interaction:							
I(satisfaction*stv similarity)	eval	0.557		0.665			
		0.770	[0.886 , 0.586]	0.883	[0.868 , 0.41]		
value based selection:							
stv alter	eval	-0.017		-0.018			
		0.038	[0.459 , 0.911]	0.045	[0.362 , 0.8]		
stv ego	eval	-0.052		-0.038			
		0.042	[0.02 , 0.882]	0.043	[0.114 , 0.84]		
stv similarity	eval	0.071		0.112			
		0.185	[0.895 , 0.664]	0.210	[0.926 , 0.436]		
stv alter	endow					-0.036	
						0.095	[0.639 , 0.886]
stv ego	endow					0.233	
						0.506	[0.36 , 0.186]
stv similarity	endow					-0.201	
						0.517	[0.653 , 0.708]
stv alter	create					0.044	
						0.089	[0.809 , 0.552]
stv ego	create					-0.252	
						0.503	[0.137 , 0.46]
stv similarity	create					0.218	
						0.475	[0.833 , 0.629]
self-transcendence change:							
1st period	**rate**	1.375	***	1.383	***	1.300	***
		0.165	[1 , 0]	0.194	[1 , 0]	0.166	[1 , 0]
2nd period	**rate**	1.168	***	1.064	***	1.117	***
		0.140	[1 , 0]	0.146	[1 , 0]	0.142	[1 , 0]
linear	**eval**	0.289	***	0.294	***	0.277	***
		0.046	[1 , 0]	0.063	[1 , 0]	0.050	[1 , 0]
quadratic	**eval**			-0.220	***		
				0.053	[0 , 1]		
average similarity	**eval**	2.643	***			2.371	***
		0.494	[1 , 0]			0.507	[1 , 0]
effect from satisfaction	**eval**	0.041	†			0.048	†
		0.025	[0.995 , 0.2]			0.027	[0.991 , 0.192]
average alter satisfaction	eval			-0.091			
				0.137	[0.696 , 0.966]		
goodness of fit:		μ_p	χ^2 test	μ_p	χ^2 test	μ_p	χ^2 test
		σ_p	[converge / fit]	σ_p	[converge / fit]	σ_p	[converge / fit]
GOF (outdegree)		0.286	***	0.304	***	0.295	***
		0.298	[54 / 36]	0.311	[43 / 30]	0.300	[44 / 32]
GOF (behavior)		0.542	***	0.597	***	0.621	***
		0.308	[54 / 50]	0.346	[43 / 38]	0.289	[44 / 42]

$^{***}p < 0.01$, $^{**}0.01 < p < 0.05$, $^{*}0.05 < p < 0.1$, $^{\dagger}p < 0.1$

Table 6.11: **Conservation values (cov) and life satisfaction**

effect	function	value susceptibility		value resistance		phase transition	
		μ_θ	fisher's p	μ_θ	fisher's p	μ_θ	fisher's p
		σ_θ	fisher's [l,r] p	σ_θ	fisher's [l,r] p	σ_θ	fisher's [l,r] p
friendship structure change:							
1st period	**rate**	6.869	***	6.568	***	7.603	***
		0.521	[1 , 0]	0.542	[1 , 0]	0.718	[1 , 0]
2nd period	**rate**	7.007	***	6.606	***	8.387	***
		0.377	[1 , 0]	0.370	[1 , 0]	0.726	[1 , 0]
density	**eval**	-1.730	***	-1.786	***	-1.833	***
		0.074	[0 , 1]	0.083	[0 , 1]	0.095	[0 , 1]
reciprocity	**eval**	1.319	***	1.405	***	1.409	***
		0.082	[1 , 0]	0.091	[1 , 0]	0.075	[1 , 0]
transitivity	**eval**	1.420	***	1.480	***	1.467	***
		0.053	[1 , 0]	0.055	[1 , 0]	0.061	[1 , 0]
indegree popularity	**eval**	-0.134	***	-0.144	***	-0.156	***
		0.016	[0 , 1]	0.019	[0 , 1]	0.019	[0 , 1]
satisfaction based selection:							
satisfaction similarity	**eval**	0.219	*	0.306	***		
		0.086	[0.997 , 0.051]	0.098	[0.998 , 0.02]		
satisfaction similarity	**endow**					0.559	*
						0.247	[0.997 , 0.023]
satisfaction similarity	create					-0.151	
						0.224	[0.299 , 0.726]
satisfaction value interaction:							
I(satisfaction*cov similarity)	eval	-0.195		-0.731			
		0.866	[0.761 , 0.633]	1.047	[0.489 , 0.871]		
value based selection:							
cov alter	**eval**	-0.074	*	-0.065			
		0.037	[0.018 , 0.994]	0.047	[0.066 , 0.932]		
cov ego	eval	-0.018		0.004			
		0.033	[0.385 , 0.449]	0.041	[0.644 , 0.335]		
cov similarity	eval	0.022		-0.036			
		0.224	[0.852 , 0.705]	0.272	[0.737 , 0.733]		
cov alter	**endow**					-0.162	†
						0.091	[0.347 , 0.886]
cov ego	**endow**					-0.936	*
						0.470	[0.036 , 0.925]
cov similarity	endow					0.726	
						0.682	[0.922 , 0.386]
cov alter	create					-0.017	
						0.074	[0.573 , 0.911]
cov ego	**create**					0.938	*
						0.419	[0.962 , 0.023]
cov similarity	create					-0.533	
						0.609	[0.383 , 0.925]
conservation change:							
1st period	**rate**	1.583	***	1.707	***	1.628	***
		0.142	[1 , 0]	0.171	[1 , 0]	0.174	[1 , 0]
2nd period	**rate**	1.528	***	1.164	***	1.313	***
		0.200	[1 , 0]	0.180	[1 , 0]	0.204	[1 , 0]
linear	**eval**	0.126	***	0.141	***	0.104	***
		0.030	[1 , 0]	0.037	[1 , 0.002]	0.037	[1 , 0.021]
quadratic	**eval**			-0.250	***		
				0.028	[0 , 1]		
average similarity	**eval**	3.086	***			3.047	***
		0.360	[1 , 0]			0.436	[1 , 0]
effect from satisfaction	eval	0.009				0.026	
		0.018	[0.84 , 0.403]			0.024	[0.901 , 0.327]
average alter satisfaction	eval			-0.040			
				0.083	[0.779 , 0]		
goodness of fit:		μ_p	χ^2 test	μ_p	χ^2 test	μ_p	χ^2 test
		σ_p	[converge / fit]	σ_p	[converge / fit]	σ_p	[converge / fit]
GOF (outdegree)		0.283	***	0.289	***	0.275	***
		0.290	[58 / 40]	0.287	[53 / 36]	0.281	[40 / 26]
GOF (behavior)		0.652	***	0.648	***	0.676	***
		0.261	[58 / 58]	0.307	[53 / 51]	0.261	[40 / 40]

$^{***}p < 0.01$, $^{**}0.01 < p < 0.05$, $^{*}0.05 < p < 0.1$, $^{\dagger}p < 0.1$

Table 6.12: **Self-enhancement values (sev) and life satisfaction**

effect	function	value susceptibility		value resistance		phase transition	
		μ_θ	fisher's p	μ_θ	fisher's p	μ_θ	fisher's p
		σ_θ	fisher's [l,r] p	σ_θ	fisher's [l,r] p	σ_θ	fisher's [l,r] p
friendship structure change:							
1st period	**rate**	7.325	***	6.932	***	7.406	***
		0.524	[1 , 0]	0.455	[1 , 0]	0.643	[1 , 0]
2nd period	**rate**	7.023	***	7.081	***	7.164	***
		0.441	[1 , 0]	0.444	[1 , 0]	0.512	[1 , 0]
density	**eval**	-1.733	***	-1.793	***	-1.770	***
		0.060	[0 , 1]	0.064	[0 , 1]	0.079	[0 , 1]
reciprocity	**eval**	1.255	***	1.333	***	1.386	***
		0.083	[1 , 0]	0.081	[1 , 0]	0.087	[1 , 0]
transitivity	**eval**	1.410	***	1.461	***	1.477	***
		0.048	[1 , 0]	0.046	[1 , 0]	0.052	[1 , 0]
indegree popularity	**eval**	-0.127	***	-0.139	***	-0.142	***
		0.014	[0 , 1]	0.015	[0 , 1]	0.015	[0 , 1]
satisfaction based selection:							
satisfaction similarity	**eval**	0.204	***	0.169	*		
		0.072	[0.997 , 0.022]	0.071	[0.985 , 0.05]		
satisfaction similarity	endow					0.220	
						0.258	[0.78 , 0.08]
satisfaction similarity	create					0.070	
						0.200	[0.388 , 0.434]
satisfaction value interaction:							
I(satisfaction*sev similarity)	eval	-0.337		0.031			
		0.655	[0.707 , 0.896]	0.678	[0.852 , 0.76]		
value based selection:							
sev alter	**eval**	-0.039	†	-0.051	†		
		0.023	[0.021 , 0.958]	0.029	[0.017 , 0.968]		
sev ego	eval	0.020		0.038			
		0.026	[0.474 , 0.127]	0.026	[0.636 , 0.051]		
sev similarity	**eval**	0.337	*	0.220			
		0.162	[0.985 , 0.121]	0.167	[0.96 , 0.227]		
sev alter	**endow**					-0.139	†
						0.081	[0.084 , 0.826]
sev ego	endow					-0.609	
						0.444	[0 , 0.165]
sev similarity	endow					0.797	
						0.532	[0.969 , 0.252]
sev alter	create					-0.022	
						0.060	[0.506 , 0.891]
sev ego	create					0.657	
						0.433	[0.274 , 0]
sev similarity	create					-0.006	
						0.470	[0.702 , 0.789]
self-enhancement change:							
1st period	**rate**	1.477	***	1.399	***	1.330	***
		0.118	[1 , 0]	0.119	[1 , 0]	0.124	[1 , 0]
2nd period	**rate**	1.461	***	1.456	***	1.349	***
		0.122	[1 , 0]	0.128	[1 , 0]	0.145	[1 , 0]
linear	**eval**	0.073	*	0.103	***	0.089	*
		0.030	[1 , 0.004]	0.036	[1 , 0.005]	0.037	[0.999 , 0.009]
quadratic	**eval**			-0.156	***		
				0.022	[0 , 1]		
average similarity	**eval**	1.982	***			1.684	***
		0.319	[1 , 0]			0.367	[1 , 0]
effect from satisfaction	eval	0.003				-0.025	
		0.016	[0.54 , 0.749]			0.020	[0.216 , 0.985]
average alter satisfaction	eval			0.057			
				0.069	[0.994 , 0.792]		
goodness of fit:		μ_p	χ^2 test	μ_p	χ^2 test	μ_p	χ^2 test
		σ_p	[converge / fit]	σ_p	[converge / fit]	σ_p	[converge / fit]
GOF (outdegree)		0.275	***	0.283	***	0.243	***
		0.269	[64 / 46]	0.269	[59 / 44]	0.271	[54 / 35]
GOF (behavior)		0.678	***	0.698	***	0.679	***
		0.246	[64 / 64]	0.278	[59 / 59]	0.255	[54 / 54]

$^{***}p < 0.01$, $^{**}0.01 < p < 0.05$, $^{*}0.05 < p < 0.1$, $^{\dagger}p < 0.1$

Table 6.13: **Openness to change values (opv) and life satisfaction**

effect	function	value susceptibility		value resistance		phase transition	
		μ_θ	fisher's p	μ_θ	fisher's p	μ_θ	fisher's p
		σ_θ	fisher's [l,r] p	σ_θ	fisher's [l,r] p	σ_θ	fisher's [l,r] p
friendship structure change:							
1st period	**rate**	6.010	***	5.715	***	6.472	***
		0.451	[1 , 0]	0.526	[1 , 0]	0.555	[1 , 0]
2nd period	**rate**	6.120	***	5.743	***	6.644	***
		0.428	[1 , 0]	0.518	[1 , 0]	0.848	[1 , 0]
density	**eval**	-1.615	***	-1.658	***	-1.633	***
		0.102	[0 , 1]	0.119	[0 , 1]	0.103	[0 , 1]
reciprocity	**eval**	1.355	***	1.248	***	1.401	***
		0.105	[1 , 0]	0.136	[1 , 0]	0.113	[1 , 0]
transitivity	**eval**	1.465	***	1.368	***	1.444	***
		0.060	[1 , 0]	0.071	[1 , 0]	0.062	[1 , 0]
indegree popularity	**eval**	-0.165	***	-0.134	***	-0.165	***
		0.020	[0 , 1]	0.024	[0 , 1]	0.021	[0 , 1]
satisfaction based selection:							
satisfaction similarity	**eval**	0.360	***	0.301	*		
		0.104	[1 , 0.009]	0.144	[0.995 , 0.106]		
satisfaction similarity	endow					0.403	
						0.349	[0.675 , 0.048]
satisfaction similarity	create					0.002	
						0.241	[0.5 , 0.408]
satisfaction value interaction:							
I(satisfaction*opv similarity)	eval	-0.486		-0.720			
		0.836	[0.588 , 0.853]	1.248	[0.456 , 0.793]		
value based selection:							
opv alter	**eval**	-0.104	*	-0.079			
		0.051	[0.131 , 0.926]	0.059	[0.508 , 0.874]		
opv ego	eval	-0.067		-0.076			
		0.053	[0.132 , 0.925]	0.057	[0.284 , 0.841]		
opv similarity	**eval**	0.308		0.711	*		
		0.218	[0.992 , 0.205]	0.333	[0.998 , 0.2]		
opv alter	endow					-0.122	
						0.121	[0.395 , 0.964]
opv ego	endow					0.393	
						0.638	[0.59 , 0.059]
opv similarity	endow					0.056	
						0.634	[0.9 , 0.746]
opv alter	create					-0.050	
						0.105	[0.649 , 0.814]
opv ego	create					-0.652	
						0.641	[0.028 , 0.785]
opv similarity	create					0.733	
						0.591	[0.955 , 0.352]
openness change:							
1st period	**rate**	1.455	***	1.649	***	1.374	***
		0.142	[1 , 0]	0.221	[1 , 0]	0.150	[1 , 0]
2nd period	**rate**	0.877	***	1.029	***	0.818	***
		0.116	[1 , 0]	0.164	[1 , 0]	0.119	[1 , 0]
linear	**eval**	0.248	***	0.274	***	0.267	***
		0.048	[1 , 0]	0.067	[1 , 0.001]	0.064	[1 , 0]
quadratic	**eval**			-0.270	***		
				0.063	[0 , 1]		
average similarity	**eval**	2.335	***			2.049	***
		0.422	[1 , 0]			0.540	[1 , 0]
effect from satisfaction	**eval**	0.047	†			0.055	
		0.027	[0.986 , 0.213]			0.037	[0.955 , 0.346]
avg alter satisfaction	eval			-0.021			
				0.131	[0.836 , 0.894]		
goodness of fit:		μ_p	χ^2 test	μ_p	χ^2 test	μ_p	χ^2 test
		σ_p	[converge / fit]	σ_p	[converge / fit]	σ_p	[converge / fit]
GOF (outdegree)		0.282	***	0.270	***	0.281	***
		0.307	[56 / 36]	0.302	[40 / 25]	0.304	[41 / 26]
GOF (behavior)		0.693	***	0.757	***	0.678	***
		0.272	[56 / 55]	0.294	[40 / 38]	0.290	[41 / 40]

$^{***}p < 0.01$, $^{**}0.01 < p < 0.05$, $^{*}0.05 < p < 0.1$, $^{\dagger}p < 0.1$

Table 6.14: **Interdependence with self-transcendence values (stv)**

effect	function	value susceptibility		value resistance		phase transition	
		μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p
friendship structure change:							
1st period	**rate**	7.301 0.580	*** [1 , 0]	6.942 0.720	*** [1 , 0]	7.433 0.765	*** [1 , 0]
2nd period	**rate**	6.887 0.470	*** [1 , 0]	6.818 0.500	*** [1 , 0]	7.097 0.579	*** [1 , 0]
density	**eval**	-1.591 0.069	*** [0 , 1]	-1.601 0.115	*** [0 , 1]	-1.563 0.103	*** [0 , 1]
reciprocity	**eval**	1.253 0.080	*** [1 , 0]	1.229 0.110	*** [1 , 0]	1.315 0.087	*** [1 , 0]
transitivity	**eval**	1.368 0.043	*** [1 , 0]	1.352 0.056	*** [1 , 0]	1.415 0.064	*** [1 , 0]
indegree popularity	**eval**	-0.143 0.015	*** [0 , 1]	-0.139 0.021	*** [0 , 1]	-0.159 0.022	*** [0 , 1]
self-transcendence change:							
1st period	**rate**	4.597 2.237	* [1 , 0]	1.437 0.198	*** [1 , 0]	1.574 0.246	*** [1 , 0]
2nd period	**rate**	1.108 0.134	*** [1 , 0]	1.167 0.157	*** [1 , 0]	1.265 0.228	*** [1 , 0]
linear	**eval**	0.261 0.045	*** [1 , 0]	0.260 0.079	*** [1 , 0.008]	0.342 0.070	*** [1 , 0]
quadratic	**eval**			-0.217 0.068	*** [0.014 , 1]		
average similarity	**eval**	2.835 0.507	*** [1 , 0]			2.714 0.717	*** [1 , 0.001]
value interdependencies:							
effect from cov	eval	0.012 0.060	[0.665 , 0.745]				
effect from cov	endow					0.304 0.398	[0.886 , 0.678]
effect from cov	create					-0.442 0.414	[0.661 , 0.965]
average alter cov	eval			0.304 0.324	[0.939 , 0.558]		
effect from sev	eval	-0.048 0.049	[0.177 , 0.988]				
effect from sev	endow					0.061 0.353	[0.839 , 0.873]
effect from sev	create					-0.246 0.360	[0.632 , 0.943]
average alter sev	eval			-0.347 0.278	[0.506 , 0.967]		
effect from opv	eval	0.056 0.068	[0.974 , 0.352]				
effect from opv	endow					-0.248 0.547	[0.658 , 0.94]
effect from opv	create					0.545 0.524	[0.951 , 0.412]
average alter opv	eval			-0.040 0.419	[0.866 , 0.807]		
goodness of fit:		μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]
GOF (outdegree)		0.268 0.286	*** [64 , 42]	0.256 0.296	*** [40 , 26]	0.219 0.257	*** [44 , 28]
GOF (values)		0.581 0.301	*** [64 , 59]	0.600 0.339	*** [40 , 38]	0.592 0.279	*** [44 , 42]

$^{***}p < 0.01$, $^{**}0.01 < p < 0.05$, $^{*}0.05 < p < 0.1$, $^{\dagger}p < 0.1$

Table 6.15: **Interdependence with conservation values (cov)**

effect	function	**value susceptibility**		**value resistance**		**phase transition**	
		μ_θ	fisher's p	μ_θ	fisher's p	μ_θ	fisher's p
		σ_θ	fisher's [l,r] p	σ_θ	fisher's [l,r] p	σ_θ	fisher's [l,r] p
friendship structure change:							
1st period	**rate**	7.495	***	7.381	***	7.399	***
		0.565	[1 , 0]	0.744	[1 , 0]	0.595	[1 , 0]
2nd period	**rate**	7.430	***	7.155	***	7.410	***
		0.474	[1 , 0]	0.571	[1 , 0]	0.413	[1 , 0]
density	**eval**	-1.633	***	-1.677	***	-1.640	***
		0.069	[0 , 1]	0.078	[0 , 1]	0.073	[0 , 1]
reciprocity	**eval**	1.249	***	1.345	***	1.334	***
		0.076	[1 , 0]	0.102	[1 , 0]	0.062	[1 , 0]
transitivity	**eval**	1.358	***	1.392	***	1.362	***
		0.045	[1 , 0]	0.056	[1 , 0]	0.046	[1 , 0]
indegree popularity	**eval**	-0.135	***	-0.147	***	-0.141	***
		0.014	[0 , 1]	0.018	[0 , 1]	0.015	[0 , 1]
conservation change:							
1st period	**rate**	1.505	***	1.536	***	1.677	***
		0.128	[1 , 0]	0.191	[1 , 0]	0.195	[1 , 0]
2nd period	**rate**	3.607	***	1.530	***	1.145	***
		1.175	[1 , 0]	0.280	[1 , 0]	0.191	[1 , 0]
linear	**eval**	0.134	***	0.156	**	0.113	**
		0.033	[1 , 0.001]	0.058	[1 , 0.047]	0.042	[1 , 0.027]
quadratic	**eval**			-0.261	***		
				0.046	[0 , 1]		
average similarity	**eval**	3.057	***			3.206	***
		0.404	[1 , 0]			0.448	[1 , 0]
value interdependencies:							
effect from stv	eval	-0.020					
		0.050	[0.68 , 0.862]				
effect from stv	endow					-0.296	
						0.369	[0.666 , 0.872]
effect from stv	create					0.297	
						0.330	[0.881 , 0.701]
average alter stv	eval			-0.123			
				0.294	[0.831 , 0.847]		
effect from sev	eval	0.025					
		0.036	[0.653 , 0.711]				
effect from sev	endow					-0.040	
						0.241	[0.671 , 0.899]
effect from sev	create					-0.095	
						0.225	[0.778 , 0.888]
average alter sev	eval			-0.038			
				0.223	[0.746 , 0.873]		
effect from opv	eval	-0.004					
		0.054	[0.833 , 0.482]				
effect from opv	endow					0.269	
						0.363	[0.805 , 0.462]
effect from opv	create					-0.073	
						0.343	[0.608 , 0.762]
average alter opv	eval			-0.031			
				0.357	[0.765 , 0.883]		
goodness of fit:		μ_p	χ^2 test	μ_p	χ^2 test	μ_p	χ^2 test
		σ_p	[converge / fit]	σ_p	[converge / fit]	σ_p	[converge / fit]
GOF (outdegree)		0.273	***	0.266	***	0.267	***
		0.281	[63 , 42]	0.289	[39 , 26]	0.289	[50 , 39]
GOF (values)		0.667	***	0.673	***	0.665	***
		0.257	[63 , 63]	0.288	[39 , 38]	0.275	[50 , 50]

$^{***}p < 0.01$, $^{**}0.01 < p < 0.05$, $^{*}0.05 < p < 0.1$, $^{\dagger}p < 0.1$

Table 6.16: **Interdependence with self-enhancement values (sev)**

effect	function	value susceptibility μ_θ σ_θ	fisher's p fisher's [l,r] p	value resistance μ_θ σ_θ	fisher's p fisher's [l,r] p	phase transition μ_θ σ_θ	fisher's p fisher's [l,r] p
friendship structure change:							
1st period	**rate**	7.940 0.574	*** [1 , 0]	6.924 0.552	*** [1 , 0]	7.773 0.703	*** [1 , 0]
2nd period	**rate**	7.340 0.442	*** [1 , 0]	6.883 0.564	*** [1 , 0]	7.227 0.508	*** [1 , 0]
density	**eval**	-1.629 0.061	*** [0 , 1]	-1.630 0.076	*** [0 , 1]	-1.647 0.068	*** [0 , 1]
reciprocity	**eval**	1.215 0.074	*** [1 , 0]	1.274 0.093	*** [1 , 0]	1.225 0.088	*** [1 , 0]
transitivity	**eval**	1.325 0.043	*** [1 , 0]	1.403 0.047	*** [1 , 0]	1.346 0.047	*** [1 , 0]
indegree popularity	**eval**	-0.126 0.013	*** [0 , 1]	-0.142 0.017	*** [0 , 1]	-0.128 0.015	*** [0 , 1]
self-enhancement change:							
1st period	**rate**	1.319 0.110	*** [1 , 0]	1.089 0.128	*** [1 , 0]	1.458 0.179	*** [1 , 0]
2nd period	**rate**	1.304 0.112	*** [1 , 0]	1.353 0.167	*** [1 , 0]	1.415 0.190	*** [1 , 0]
linear	**eval**	0.072 0.034	* [1 , 0.028]	0.088 0.059	[0.999 , 0.191]	0.101 0.048	* [1 , 0.069]
quadratic	**eval**			-0.160 0.041	*** [0 , 1]		
average similarity	**eval**	2.269 0.373	*** [1 , 0]			2.279 0.477	*** [1 , 0]
value interdependencies:							
effect from stv	**eval**	-0.118 0.054	* [0.138 , 0.999]				
effect from stv	endow					-0.449 0.376	[0.473 , 0.97]
effect from stv	create					0.116 0.323	[0.857 , 0.77]
average alter stv	eval			0.167 0.337	[0.955 , 0.801]		
effect from cov	eval	0.045 0.046	[0.86 , 0.368]				
effect from cov	endow					-0.234 0.311	[0.625 , 0.877]
effect from cov	create					0.138 0.269	[0.896 , 0.759]
average alter cov	eval			0.224 0.254	[0.983 , 0.713]		
effect from opv	eval	-0.011 0.055	[0.712 , 0.81]				
effect from opv	endow					0.101 0.409	[0.74 , 0.626]
effect from opv	create					-0.026 0.342	[0.717 , 0.779]
average alter opv	eval			0.226 0.381	[0.955 , 0.775]		
goodness of fit:		μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]
GOF (outdegree)		0.260 0.277	*** [65 , 44]	0.274 0.288	*** [44 , 32]	0.265 0.283	*** [51, 33]
GOF (behavior)		0.663 0.240	*** [65 , 65]	0.689 0.308	*** [44 , 44]	0.663 0.283	*** [51 , 51]

$^{***}p < 0.01$, $^{**}0.01 < p < 0.05$, $^{*}0.05 < p < 0.1$, $^{\dagger}p < 0.1$

Table 6.17: **Interdependence with openness to change values (opv)**

		value susceptibility		**value resistance**		**phase transition**	
effect	function	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p
friendship structure change:							
1st period	**rate**	7.272 0.587	*** [1 , 0]	5.675 0.474	*** [1 , 0]	7.761 0.805	*** [1 , 0]
2nd period	**rate**	7.291 0.529	*** [1 , 0]	6.449 0.533	*** [1 , 0]	6.954 0.440	*** [1 , 0]
density	**eval**	-1.606 0.073	*** [0 , 1]	-1.529 0.075	*** [0 , 1]	-1.661 0.073	*** [0 , 1]
reciprocity	**eval**	1.244 0.087	*** [1 , 0]	1.386 0.068	*** [1 , 0]	1.272 0.123	*** [1 , 0]
transitivity	**eval**	1.390 0.049	*** [1 , 0]	1.449 0.052	*** [1 , 0]	1.381 0.049	*** [1 , 0]
indegree popularity	**eval**	-0.144 0.015	*** [0 , 1]	-0.175 0.019	*** [0 , 1]	-0.133 0.019	*** [0 , 1]
openness change:							
1st period	**rate**	1.453 0.149	*** [1 , 0]	1.427 0.180	*** [1 , 0]	7.913 5.163	 [1 , 0]
2nd period	**rate**	0.830 0.096	*** [1 , 0]	0.937 0.165	*** [1 , 0]	0.851 0.189	*** [1 , 0]
linear	**eval**	0.260 0.049	*** [1 , 0]	0.304 0.106	*** [1 , 0.02]	0.254 0.091	** [1 , 0.007]
quadratic	**eval**			-0.325 0.107	*** [0.007 , 1]		
average similarity	**eval**	2.326 0.447	*** [1 , 0]			2.871 0.788	*** [1 , 0.006]
value interdependencies:							
effect from stv	**eval**	0.190 0.074	** [1 , 0.056]				
effect from stv	endow					0.035 0.604	[0.816 , 0.565]
effect from stv	create					0.657 0.559	[0.97 , 0.339]
average alter stv	eval			0.118 0.475	[0.903 , 0.733]		
effect from cov	eval	0.024 0.063	[0.751 , 0.786]				
effect from cov	endow					-0.058 0.589	[0.771 , 0.732]
effect from cov	create					-0.065 0.498	[0.647 , 0.769]
average alter cov	eval			-0.258 0.533	[0.455 , 0.97]		
effect from sev	eval	-0.006 0.056	[0.861 , 0.751]				
effect from sev	endow					0.494 0.492	[0.953 , 0.388]
effect from sev	create					-0.299 0.475	[0.395 , 0.9]
average alter sev	eval			0.160 0.394	[0.91 , 0.695]		
goodness of fit:		μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]
GOF (outdegree)		0.255 0.278	*** [57 , 37]	0.287 0.309	*** [36 , 25]	0.295 0.317	*** [39 , 25]
GOF (values)		0.668 0.287	*** [57 , 56]	0.766 0.265	*** [36 , 35]	0.730 0.225	*** [39 , 39]

$^{***}p < 0.01$, $^{**}0.01 < p < 0.05$, $^{*}0.05 < p < 0.1$, $^{\dagger}p < 0.1$

Table 6.18: **Self-transcendence values (stv) across countries**

		Switzerland						Poland					
		value susceptibility		**value resistance**		**phase transition**		**value susceptibility**		**value resistance**		**phase transition**	
effect	function	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p μ_θ fisher's [l,r] p	fisher's p σ_θ	μ_θ fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p
friendship structure change:													
same gender	**eval**	0.402 0.061	*** [1 , 0]	0.446 0.064	*** [1 , 0]	0.345 0.053	*** [1 , 0]	0.359 0.075	*** [1 , 0]	0.336 0.111	*** [0.998 , 0]	0.415 0.078	*** [1 , 0]
same gender	endow					0.013 0.187	 [0.602 , 0.465]					0.222 0.173	 [0.896 , 0.029]
same gender	**create**					0.655 0.122	*** [1 , 0]					0.708 0.145	*** [1 , 0]
int(gender*stv)	eval	-0.169 0.445	 [0.641 , 0.85]	-0.281 0.478	 [0.642 , 0.938]			0.221 0.459	 [0.654 , 0.386]	0.083 0.515	 [0.721 , 0.535]		
satisfaction similarity	**eval**	0.288 0.108	** [0.974 , 0.056]	0.392 0.129	*** [0.998 , 0.03]			0.348 0.157	* [0.995 , 0.044]	0.549 0.233	* [0.989 , 0.03]		
satisfaction similarity	**endow**					0.496 0.285	† [0.915 , 0.119]					-0.549 0.402	 [0.189 , 0.797]
satisfaction similarity	**create**					0.129 0.239	 [0.743 , 0.427]					0.899 0.399	* [0.985 , 0.009]
int(satisfaction*stv)	eval	0.260 0.911	 [0.691 , 0.646]	0.228 1.086	 [0.641 , 0.667]			1.303 1.441	 [0.934 , 0.384]	1.524 1.520	 [0.964 , 0.124]		
stv alter	eval	-0.023 0.047	 [0.251 , 0.914]	-0.012 0.055	 [0.339 , 0.81]			-0.043 0.036	 [0.174 , 0.892]	-0.025 0.045	 [0.57 , 0.657]		
stv ego	**eval**	-0.051 0.048	 [0.065 , 0.791]	-0.048 0.052	 [0.179 , 0.909]			-0.089 0.053	. [0.001 , 0.8]	-0.102 0.048	* [0.035 , 0.926]		
stv similarity	eval	0.070 0.207	 [0.814 , 0.549]	0.115 0.228	 [0.761 , 0.524]			0.401 0.265	 [0.944 , 0.031]	0.111 0.269	 [0.758 , 0.207]		
stv alter	endow					0.003 0.117	 [0.661 , 0.792]					-0.003 0.096	 [0.789 , 0.521]
stv ego	endow					0.312 0.549	 [0.564 , 0.27]					0.372 0.763	 [0.25 , 0.081]
stv similarity	endow					-0.185 0.676	 [0.618 , 0.84]					0.040 0.627	 [0.79 , 0.415]
stv alter	create					0.024 0.101	 [0.572 , 0.519]					0.012 0.098	 [0.639 , 0.609]
stv ego	create					-0.205 0.566	 [0.27 , 0.465]					-0.630 0.796	 [0.041 , 0.415]
stv similarity	create					-0.053 0.570	 [0.575 , 0.789]					0.350 0.643	 [0.825 , 0.374]
self-transcendence change:													
linear	**eval**	0.321 0.053	*** [1 , 0]	0.396 0.062	*** [1 , 0]	0.360 0.058	*** [1 , 0]	0.167 0.052	*** [1 , 0.002]	0.095 0.091	 [0.92 , 0.326]	0.159 0.070	* [0.999 , 0.017]
quadratic	**eval**			-0.315 0.060	*** [0 , 1]					-0.198 0.070	*** [0.021 , 0.991]		
average similarity	**eval**	2.196 0.462	*** [1 , 0]			2.031 0.502	*** [1 , 0]	2.956 0.806	*** [0.999 , 0]			1.964 0.922	* [0.954 , 0.013]
effect from gender	**eval**	0.257 0.101	* [1 , 0.039]			0.239 0.112	* [0.998 , 0.1]	0.365 0.117	*** [1 , 0.008]			0.310 0.146	* [0.994 , 0.048]
avg alter gender	**eval**			0.530 0.190	** [0.999 , 0.019]					0.490 0.580	 [0.849 , 0.342]		
effect from satisfaction	**eval**	0.041 0.031	 [0.977 , 0.303]			0.028 0.034	 [0.936 , 0.428]	0.042 0.045	 [0.949 , 0.185]			0.080 0.043	† [0.98 , 0.084]
average alter satisfaction	eval			-0.090 0.157	 [0.636 , 0.951]					-0.094 0.280	 [0.626 , 0.73]		
goodness of fit:		μ_p σ_p [converge / fit]	χ^2 test	μ_p σ_p [converge / fit]	χ^2 test	μ_p σ_p [converge / fit]	χ^2 test	μ_p σ_p [converge / fit]	χ^2 test	μ_p σ_p [converge / fit]	χ^2 test	μ_p σ_p [converge / fit]	χ^2 test
GOF (outdegree)		0.435 0.287	*** [31 , 28]	0.450 0.306	*** [30 , 27]	0.453 0.266	*** [25 , 24]	0.186 0.247	*** [27 , 18]	0.160 0.228	*** [25 , 12]	0.200 0.252	*** [21 , 12]
GOF (values)		0.642 0.252	*** [31 , 30]	0.722 0.304	*** [30 , 28]	0.629 0.273	*** [25 , 24]	0.453 0.301	*** [27 , 25]	0.456 0.347	*** [25 , 22]	0.470 0.325	*** [21 , 19]

$^{***}p < 0.01$, $^{**}0.01 < p < 0.05$, $^{*}0.05 < p < 0.1$, $^{\dagger}p < 0.1$

Table 6.19: **Conservation values (cov) across countries**

		Switzerland						Poland					
		value susceptibility		**value resistance**		**phase transition**		**value susceptibility**		**value resistance**		**phase transition**	
effect	function	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p μ_θ fisher's [l,r] p	fisher's p σ_θ	μ_θ fisher's p fisher's [l,r] p	μ_θ fisher's p σ_θ	μ_θ fisher's p fisher's [l,r] p	μ_θ fisher's p σ_θ	fisher's [l,r] p
friendship structure change:													
same gender	**eval**	0.419 0.055	*** [1 , 0]	0.401 0.054	*** [1 , 0]	0.431 0.072	*** [1 , 0]	0.325 0.094	*** [0.999 , 0]	0.373 0.102	*** [0.999 , 0]	0.440 0.130	*** [1 , 0]
same gender	**endow**					0.327 0.255	* [0.782 , 0.002]					0.561 0.238	* [0.966 , 0]
same gender	**create**					0.662 0.170	*** [0.998 , 0]					0.227 0.223	 [0.535 , 0]
int(gender*cov)	**eval**	0.058 0.505	 [0.858 , 0.637]	0.080 0.578	 [0.91 , 0.52]			-2.118 0.661	*** [0.005 , 0.996]	-1.963 0.875	* [0.012 , 0.998]		
satisfaction similarity	**eval**	0.201 0.101	* [0.977 , 0.113]	0.274 0.108	* [0.991 , 0.08]			0.266 0.163	 [0.985 , 0.095]	0.477 0.295	 [0.969 , 0.032]		
satisfaction similarity	**endow**					0.878 0.299	*** [1 , 0.011]					-0.265 0.561	 [0.237 , 0.635]
satisfaction similarity	create					-0.313 0.241	 [0.168 , 0.97]					1.035 0.957	 [0.86 , 0.026]
int(satisfaction*cov)	eval	-0.160 0.992	 [0.686 , 0.638]	-0.584 1.167	 [0.545 , 0.843]			-0.310 1.777	 [0.701 , 0.45]	-1.331 2.365	 [0.307 , 0.629]		
cov alter	**eval**	-0.028 0.038	 [0.161 , 0.885]	-0.013 0.048	 [0.238 , 0.786]			-0.082 0.039	* [0.031 , 0.993]	-0.048 0.041	 [0.237 , 0.888]		
cov ego	eval	0.041 0.036	 [0.867 , 0.089]	0.024 0.040	 [0.78 , 0.257]			0.006 0.086	 [0.145 , 0.013]	0.006 0.122	 [0.219 , 0.006]		
cov similarity	eval	0.240 0.249	 [0.892 , 0.298]	0.276 0.302	 [0.848 , 0.358]			0.066 0.256	 [0.445 , 0.763]	0.056 0.300	 [0.468 , 0.566]		
cov alter	**endow**					0.039 0.108	 [0.866 , 0.468]					-0.219 0.098	* [0.039 , 0.983]
cov ego	endow					-0.420 0.532	 [0.225 , 0.771]					0.476 1.181	 [0.247 , 0.073]
cov similarity	endow					0.936 0.918	 [0.964 , 0.299]					1.117 0.815	 [0.878 , 0.182]
cov alter	create					-0.016 0.082	 [0.411 , 0.903]					0.132 0.107	 [0.762 , 0.306]
cov ego	create					0.613 0.459	 [0.833 , 0.113]					-0.394 1.214	 [0.124 , 0.198]
cov similarity	create					-0.280 0.759	 [0.587 , 0.898]					-0.974 0.826	 [0.133 , 0.769]
conservation change:													
linear	**eval**	0.130 0.033	*** [1 , 0.001]	0.149 0.035	*** [1 , 0]	0.103 0.041	* [1 , 0.029]	0.141 0.059	* [0.998 , 0.025]	0.195 0.081	* [0.999 , 0.018]	0.148 0.091	 [0.978 , 0.109]
quadratic	**eval**			-0.254 0.027	*** [0 , 1]					-0.210 0.050	*** [0 , 1]		
average similarity	**eval**	2.830 0.357	*** [1 , 0]			3.199 0.471	*** [1 , 0]	3.331 0.648	*** [1 , 0]			2.886 0.921	*** [0.997 , 0.002]
effect from gender	**eval**	0.102 0.065	 [0.933 , 0.103]			0.167 0.082	* [0.996 , 0.063]	0.021 0.120	 [0.551 , 0.635]			-0.111 0.181	 [0.329 , 0.799]
avg alter gender	eval			-0.023 0.113	 [0.459 , 0.47]					-0.036 0.348	 [0.503 , 0.834]		
effect from satisfaction	eval	0.014 0.020	 [0.895 , 0.322]			0.029 0.026	 [0.928 , 0.307]	-0.006 0.035	 [0.371 , 0.616]			-0.003 0.082	 [0.411 , 0.452]
average alter satisfaction	eval			-0.059 0.084	 [0.595 , 0.984]					16.530 15.713	 [0.942 , 0]		
goodness of fit:		μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]
GOF (outdegree)		0.461 0.274	*** [36 , 33]	0.449 0.289	*** [34 , 32]	0.463 0.292	*** [26 , 23]	0.163 0.243	*** [21 , 11]	0.160 0.245	** [20 , 9]	0.153 0.235	* [14 , 6]
GOF (values)		0.684 0.216	*** [36 , 35]	0.678 0.301	*** [34 , 32]	0.636 0.228	*** [26 , 26]	0.599 0.311	*** [21 , 21]	0.652 0.347	*** [20 , 20]	0.652 0.320	*** [14 , 14]

$^{***}p < 0.01$, $^{**}0.01 < p < 0.05$, $^{*}0.05 < p < 0.1$, $^{\dagger}p < 0.1$

Table 6.20: **Self-enhancement values (sev) across countries**

		Switzerland						Poland					
		value susceptibility		value resistance		phase transition		value susceptibility		value resistance		phase transition	
effect	function	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p μ_θ fisher's [l,r] p	fisher's p σ_θ	μ_θ fisher's p fisher's [l,r] p	μ_θ fisher's p σ_θ	μ_θ fisher's p fisher's [l,r] p	μ_θ fisher's p σ_θ	fisher's [l,r] p
friendship structure change:													
same gender	**eval**	0.416 0.056	*** [1 , 0]	0.415 0.058	*** [1 , 0]	0.401 0.069	*** [1 , 0]	0.367 0.078	*** [1 , 0]	0.299 0.070	*** [1 , 0]	0.379 0.112	*** [0.999 , 0]
same gender	**endow**					0.191 0.215	*** [0.48 , 0.032]					0.723 0.241	*** [1 , 0]
same gender	**create**					0.567 0.162	*** [0.997 , 0]					0.222 0.256	[0.46 , 0.002]
int(gender*sev)	eval	0.051 0.375	[0.403 , 0.853]	0.144 0.411	[0.466 , 0.839]			-0.482 0.596	[0.201 , 0.394]	-0.762 0.631	[0.161 , 0.65]		
satisfaction similarity	**eval**	0.131 0.089	[0.941 , 0.141]	0.080 0.085	[0.831 , 0.294]			0.340 0.121	*** [0.997 , 0.021]	0.382 0.131	*** [0.998 , 0.016]		
satisfaction similarity	endow					0.202 0.311	[0.692 , 0.122]					0.273 0.472	[0.73 , 0.178]
satisfaction similarity	create					-0.009 0.226	[0.236 , 0.686]					0.350 0.425	[0.793 , 0.108]
int(satisfaction*sev)	eval	-0.297 0.755	[0.742 , 0.813]	0.117 0.779	[0.885 , 0.663]			-0.458 1.315	[0.444 , 0.816]	-0.285 1.437	[0.454 , 0.736]		
sev alter	**eval**	-0.030 0.030	[0.073 , 0.804]	-0.034 0.034	[0.062 , 0.837]			-0.040 0.032	[0.083 , 0.949]	-0.088 0.044	* [0.042 , 0.989]		
sev ego	eval	0.015 0.026	[0.595 , 0.137]	0.011 0.029	[0.589 , 0.181]			0.039 0.046	[0.399 , 0.06]	0.084 0.067	[0.837 , 0.022]		
sev similarity	eval	0.225 0.171	[0.931 , 0.069]	0.237 0.185	[0.917 , 0.087]			0.280 0.224	[0.926 , 0.175]	0.090 0.323	[0.731 , 0.33]		
sev alter	**endow**					-0.146 0.084	† [0.073 , 0.919]					-0.147 0.153	[0.116 , 0.834]
sev ego	endow					-0.349 0.530	[0.018 , 0.117]					-0.013 1.064	[0.175 , 0.218]
sev similarity	**endow**					1.242 0.554	* [0.987 , 0.115]					-0.733 1.175	[0.346 , 0.63]
sev alter	create					0.006 0.071	[0.577 , 0.754]					0.009 0.088	[0.591 , 0.637]
sev ego	create					0.445 0.536	[0.12 , 0.011]					0.364 0.898	[0.386 , 0.08]
sev similarity	create					-0.291 0.538	[0.361 , 0.875]					0.424 1.009	[0.776 , 0.52]
self-enhancement change:													
linear	**eval**	0.054 0.035	[0.98 , 0.023]	0.089 0.038	* [1 , 0.004]	0.088 0.043	* [0.989 , 0.01]	0.124 0.051	* [1 , 0.04]	0.163 0.066	* [0.999 , 0.05]	0.108 0.072	[0.985 , 0.135]
quadratic	**eval**			-0.171 0.027	*** [0 , 1]					-0.212 0.044	*** [0 , 1]		
average similarity	**eval**	1.460 0.333	*** [1 , 0]			1.290 0.387	*** [0.999 , 0.003]	3.369 0.598	*** [1 , 0]			2.786 0.791	*** [1 , 0.001]
effect from gender	**eval**	-0.156 0.064	* [0.028 , 1]			-0.185 0.078	* [0.02 , 0.999]	-0.040 0.109	[0.381 , 0.769]			0.110 0.148	[0.569 , 0.435]
avg alter gender	**eval**			-0.333 0.116	*** [0.012 , 1]					0.078 0.400	[0.56 , 0.829]		
effect from satisfaction	eval	0.006 0.020	[0.688 , 0.6]			-0.024 0.023	[0.311 , 0.957]	-0.003 0.027	[0.274 , 0.779]			-0.028 0.040	[0.193 , 0.905]
average alter satisfaction	eval			0.060 0.073	[0.986 , 0.665]					0.031 0.200	[0.873 , 0.782]		
goodness of fit:		μ_p σ_p [converge / fit]	χ^2 test	μ_p σ_p [converge / fit]	χ^2 test	μ_p σ_p [converge / fit]	χ^2 test	μ_p σ_p [converge / fit]	χ^2 test	μ_p σ_p [converge / fit]	χ^2 test	μ_p σ_p [converge / fit]	χ^2 test
GOF (outdegree)		0.442 0.271	*** [37 , 35]	0.445 0.279	*** [36 , 34]	0.422 0.272	*** [29 , 27]	0.164 0.212	*** [26 , 15]	0.153 0.223	*** [24 , 10]	0.074 0.114	*** [17 , 7]
GOF (values)		0.695 0.218	*** [37 , 37]	0.746 0.261	*** [36 , 36]	0.692 0.233	*** [29 , 29]	0.634 0.254	*** [26 , 26]	0.617 0.284	*** [24 , 24]	0.661 0.279	*** [17 , 17]

$^{***}p < 0.01$, $^{**}0.01 < p < 0.05$, $^{*}0.05 < p < 0.1$, $^{\dagger}p < 0.1$

Table 6.21: **Openness to change values (opv) across countries**

		Switzerland						Poland					
		value susceptibility		**value resistance**		**phase transition**		**value susceptibility**		**value resistance**		**phase transition**	
effect	function	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p μ_θ fisher's [l,r] p	fisher's p σ_θ	μ_θ fisher's [l,r] p	fisher's p σ_θ	μ_θ fisher's [l,r] p	fisher's p σ_θ	
friendship structure change:													
same gender	**eval**	0.378 0.043	*** [1 , 0]	0.356 0.047	*** [1 , 0]	0.372 0.053 0.167	*** [1 , 0]	0.403 0.101	*** [1 , 0]	0.584 0.089	*** [1 , 0]	0.475 0.093 0.594	*** [0.998 , 0] †
same gender	**endow**					0.222	[0.499 , 0.041]					0.361	[0.968 , 0]
same gender	**create**					0.606 0.169	*** [0.997 , 0]					0.429 0.304	[0.611 , 0]
int(gender*opv)	**eval**	0.541 0.416	[0.918 , 0.377]	0.790 0.533	† [0.919 , 0.2]			0.508 0.527	[0.783 , 0.371]	0.671 0.636	[0.899 , 0.258]		
satisfaction similarity	**eval**	0.318 0.111	*** [0.999 , 0.021]	0.216 0.155	[0.974 , 0.223]			0.693 0.310	* [0.948 , 0.088]	0.822 0.384	* [0.967 , 0.095]		
satisfaction similarity	endow					0.225 0.336	[0.523 , 0.299]					1.536 1.203	[0.805 , 0.009]
satisfaction similarity	create					0.010 0.251	[0.566 , 0.407]					-0.125 0.918	[0.326 , 0.42]
int(satisfaction*opv)	eval	-0.251 0.861	[0.721 , 0.752]	-0.450 1.310	[0.518 , 0.72]			-4.364 3.498	[0.15 , 0.932]	-3.371 4.107	[0.223 , 0.777]		
opv alter	**eval**	-0.087 0.046	† [0.116 , 0.949]	-0.100 0.053	† [0.153 , 0.971]			-0.052 0.065	[0.322 , 0.612]	-0.020 0.085	[0.449 , 0.46]		
opv ego	eval	-0.060 0.048	[0.071 , 0.814]	-0.071 0.053	[0.13 , 0.867]			-0.081 0.084	[0.04 , 0.618]	0.035 0.096	[0.59 , 0.14]		
opv similarity	**eval**	0.316 0.196	[0.987 , 0.214]	0.444 0.228	† [0.996 , 0.103]			0.383 0.445	[0.805 , 0.177]	0.383 0.607	[0.686 , 0.205]		
opv alter	endow					-0.068 0.124	[0.513 , 0.902]					-0.040 0.178	[0.438 , 0.807]
opv ego	endow					0.387 0.661	[0.581 , 0.105]					1.093 1.616	[0.253 , 0.023]
opv similarity	endow					0.241 0.672	[0.896 , 0.656]					0.851 1.186	[0.916 , 0.263]
opv alter	create					-0.075 0.124	[0.551 , 0.829]					0.160 0.163	[0.946 , 0.257]
opv ego	create					-0.632 0.670	[0.044 , 0.736]					-1.114 1.658	[0.014 , 0.278]
opv similarity	create					0.606 0.676	[0.847 , 0.414]					-1.616 1.399	[0.307 , 0.912]
openness change:													
linear	**eval**	0.298 0.048	*** [1 , 0]	0.319 0.057	*** [1 , 0]	0.305 0.063	*** [1 , 0]	0.120 0.063	† [0.986 , 0.056]	0.182 0.100	† [0.997 , 0.091]	0.114 0.090	[0.972 , 0.15]
quadratic	**eval**			-0.314 0.057	*** [0 , 1]					-0.180 0.069	** [0.002 , 1]		
average similarity	**eval**	1.996 0.392	*** [1 , 0]			1.747 0.504	*** [1 , 0.003]	3.520 0.795	*** [1 , 0]			3.827 1.069	*** [1 , 0.001]
effect from gender	**eval**	0.185 0.089	* [0.98 , 0.156]			0.174 0.118	[0.931 , 0.23]	0.069 0.134	[0.789 , 0.518]			0.027 0.179	[0.655 , 0.643]
avg alter gender	eval			0.265 0.169	[0.956 , 0.187]					0.055 0.584	[0.713 , 0.394]		
effect from satisfaction	**eval**	0.066 0.030	* [0.994 , 0.102]			0.073 0.041	† [0.972 , 0.224]	-0.029 0.060	[0.484 , 0.807]			-0.017 0.082	[0.477 , 0.732]
average alter satisfaction	eval			-0.028 0.138	[0.74 , 0.888]					0.044 0.440	[0.759 , 0.612]		
goodness of fit:		μ_p σ_p [converge / fit]	χ^2 test	μ_p σ_p [converge / fit]	χ^2 test	μ_p σ_p [converge / fit]	χ^2 test	μ_p σ_p [converge / fit]	χ^2 test	μ_p σ_p [converge / fit]	χ^2 test	μ_p σ_p [converge / fit]	χ^2 test
GOF (outdegree)		0.451 0.294	*** [0.008 , 0.975]	0.442 0.300	*** [0.016 , 0.965]	0.450 0.285	*** [0.045 , 0.957]	0.170 0.258	*** [0 , 0.92]	0.162 0.267	* [0 , 0.953]	0.185 0.262	* [0 , 0.752]
GOF (values)		0.725 0.226	*** [0.075 , 1]	0.842 0.173	*** [0.418 , 1]	0.707 0.223	*** [0.092 , 1]	0.601 0.309	*** [0.005 , 0.982]	0.601 0.358	*** [0.001 , 0.998]	0.635 0.320	*** [0.007 , 0.989]

$^{***}p < 0.01$, $^{**}0.01 < p < 0.05$, $^{*}0.05 < p < 0.1$, $^{\dagger}p < 0.1$

6.4.2 Financial Deicsion Making in Adolescent Friendship Networks

Table 6.22: **Savings in friendship networks (interactions)**

		no interaction		**selecton interaction**		**influence interaction**	
effect	function	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p
friendship structure change:							
1st period	**rate**	7.465 0.702	*** [1 , 0]	7.763 0.837	*** [1 , 0]	6.755 0.654	*** [1 , 0]
2nd period	**rate**	7.241 0.482	*** [1 , 0]	6.958 0.456	*** [1 , 0]	7.664 0.491	*** [1 , 0]
density	**eval**	-2.048 0.107	*** [0 , 1]	-1.991 0.135	*** [0 , 1]	-1.863 0.142	*** [0 , 1]
reciprocity	**eval**	1.069 0.109	*** [1 , 0]	1.038 0.122	*** [1 , 0]	1.217 0.107	*** [1 , 0]
transitivity	**eval**	1.307 0.059	*** [1 , 0]	1.279 0.070	*** [1 , 0]	1.324 0.082	*** [1 , 0]
indegree popularity	**eval**	-0.083 0.018	*** [0 , 1]	-0.088 0.021	*** [0 , 1]	-0.137 0.029	*** [0 , 1]
gender based selection:							
same gender	**eval**	0.353 0.066	*** [1 , 0]	0.358 0.065	*** [1 , 0]	0.399 0.071	*** [1 , 0]
saving based selection:							
savings alter	eval	0.018 0.014	 [0.822 , 0.105]	0.008 0.036	 [0.74 , 0.515]	0.008 0.019	 [0.654 , 0.376]
savings ego	eval	-0.006 0.012	 [0.257 , 0.861]	0.001 0.015	 [0.512 , 0.925]	-0.015 0.015	 [0.164 , 0.886]
savings similarity	**eval**	0.455 0.238	† [0.94 , 0.024]	0.419 0.276	 [0.971 , 0.111]	0.409 0.289	 [0.838 , 0.053]
savings I(ego*similarity)	eval			0.021 0.167	 [0.746 , 0.682]		
savings change:							
1st period	**rate**	8.294 0.887	*** [1 , 0]	8.957 1.014	*** [1 , 0]	6.353 0.854	*** [1 , 0]
2nd period	**rate**	10.261 2.154	*** [1 , 0]	16.191 3.965	*** [1 , 0]	12.407 2.431	*** [1 , 0]
linear	**eval**	-0.082 0.018	*** [0 , 1]	-0.073 0.018	*** [0 , 1]	-0.110 0.025	*** [0 , 1]
quadratic	eval					0.002 0.007	 [0.47 , 0.901]
average similarity	**eval**	0.894 0.356	* [0.99 , 0.013]	0.922 0.407	* [0.976 , 0.007]	0.015 0.030	 [0.94 , 0.719]
I(quadratic*avg similarity)	**eval**					0.067 0.048	 [0.935 , 0.345]
covariate based change:							
effect from gender	**eval**	0.044 0.030	 [0.945 , 0.306]	0.056 0.032	† [0.975 , 0.13]	0.002 0.008	 [0.806 , 0.856]
goodness of fit:		μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]
GOF (outdegree)		0.318 0.309	*** [37 , 28]	0.448 0.375	*** [17 , 12]	0.303 0.296	*** [35 , 24]
GOF (savings)		0.329 0.278	*** [37 , 28]	0.493 0.331	*** [17 , 14]	0.295 0.285	*** [35 , 27]
GOF (financial decision making)			[61 , 35]		[54 , 36]		[57 , 32]

$^{***}p < 0.01$, $^{**}0.01 < p < 0.05$, $^{*}0.05 < p < 0.1$, $^{\dagger}p < 0.1$

Table 6.23: **Consumption in friendship networks (interactions)**

effect	function	no interaction		selection interaction		influence interaction	
		μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p
friendship structure change:							
1st period	**rate**	7.735 0.864	*** [1 , 0]	7.801 0.872	*** [1 , 0]	7.639 0.984	*** [1 , 0]
2nd period	**rate**	7.277 0.830	*** [1 , 0]	7.081 0.768	*** [1 , 0]	6.505 0.898	*** [1 , 0]
density	**eval**	-1.982 0.116	*** [0 , 1]	-2.043 0.128	*** [0 , 1]	-1.736 0.159	*** [0 , 1]
reciprocity	**eval**	1.203 0.118	*** [1 , 0]	1.091 0.118	*** [1 , 0]	1.279 0.085	*** [1 , 0]
transitivity	**eval**	1.389 0.066	*** [1 , 0]	1.327 0.074	*** [1 , 0]	1.343 0.083	*** [1 , 0]
indegree popularity	**eval**	-0.129 0.025	*** [0 , 1]	-0.121 0.027	*** [0 , 1]	-0.160 0.030	*** [0 , 1]
gender based selection:							
same gender	**eval**	0.359 0.068	*** [1 , 0]	0.372 0.063	*** [1 , 0]	0.272 0.055	*** [1 , 0]
consumption based selection:							
consumption alter	eval	0.015 0.018	[0.814 , 0.131]	0.040 0.040	[0.935 , 0.361]	-0.001 0.025	[0.374 , 0.477]
consumption ego	eval	0.007 0.016	[0.842 , 0.263]	0.016 0.024	[0.877 , 0.493]	-0.003 0.018	[0.764 , 0.462]
consumption similarity	**eval**	0.468 0.260	† [0.983 , 0.028]	0.088 0.354	[0.843 , 0.292]	0.104 0.290	[0.713 , 0.477]
consumption I(ego*similarity)	eval			0.068 0.177	[0.782 , 0.704]		
consumption change:							
1st period	**rate**	7.138 1.089	*** [1 , 0]	8.254 1.330	*** [1 , 0]	5.363 1.205	*** [1 , 0]
2nd period	**rate**	16.876 3.840	*** [1 , 0]	7.978 1.391	*** [1 , 0]	8.296 1.568	*** [1 , 0]
linear	**eval**	-0.062 0.017	*** [0 , 0.983]	-0.066 0.020	*** [0 , 0.989]	-0.030 0.034	[0.271 , 0.757]
quadratic	eval					-0.010 0.011	[0.257 , 0.746]
average similarity	**eval**	0.918 0.372	* [0.948 , 0.045]	1.040 0.418	* [0.975 , 0.031]	0.028 0.050	[0.754 , 0.558]
I(quadratic*avg similarity)	eval					0.042 0.059	[0.897 , 0.483]
covariate based change:							
effect from gender	eval	0.031 0.032	[0.982 , 0.254]	0.016 0.035	[0.948 , 0.446]	-0.002 0.016	[0.645 , 0.919]
goodness of fit:		μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]
GOF (outdegree)		0.318 0.309	*** [37 , 28]	0.448 0.375	*** [17 , 12]	0.303 0.296	*** [35 , 24]
GOF (behavior)		0.329 0.278	*** [37 , 28]	0.493 0.331	*** [17 , 14]	0.295 0.285	*** [35 , 27]
GOF (financial decision making)			[61 , 35]		[54 , 36]		[57 , 32]

$^{***}p < 0.01$, $^{**}0.01 < p < 0.05$, $^{*}0.05 < p < 0.1$, $^{\dagger}p < 0.1$

Table 6.24: **Donations in friendship networks (interactions)**

effect	function	no interaction		selection interaction		influence interaction	
		μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p
friendship structure change:							
1st period	**rate**	6.977 0.700	*** [1 , 0]	7.637 0.825	*** [1 , 0]	5.930 0.845	*** [1 , 0]
2nd period	**rate**	7.207 0.475	*** [1 , 0]	6.655 0.467	*** [1 , 0]	6.854 0.547	*** [1 , 0]
density	**eval**	-1.899 0.102	*** [0 , 1]	-2.021 0.144	*** [0 , 1]	-1.927 0.220	*** [0 , 1]
reciprocity	**eval**	1.193 0.070	*** [1 , 0]	1.070 0.103	*** [1 , 0]	1.164 0.096	*** [1 , 0]
transitivity	**eval**	1.236 0.071	*** [1 , 0]	1.238 0.073	*** [1 , 0]	1.301 0.092	*** [1 , 0]
indegree popularity	**eval**	-0.106 0.016	*** [0 , 1]	-0.084 0.018	*** [0 , 1]	-0.100 0.023	*** [0 , 1]
gender based selection:							
same gender	**eval**	0.266 0.052	*** [1 , 0]	0.353 0.066	*** [1 , 0]	0.390 0.084	*** [1 , 0]
donation based selection:							
donation alter	eval	-0.003 0.034	 [0.416 , 0.81]	0.077 0.056	 [0.919 , 0.37]	0.002 0.039	 [0.471 , 0.72]
donation ego	**eval**	0.021 0.034	 [0.835 , 0.36]	0.026 0.040	 [0.9 , 0.196]	0.072 0.037	† [0.991 , 0.087]
donation similarity	**eval**	0.502 0.353	 [0.899 , 0.182]	0.893 0.458	† [0.961 , 0.065]	0.601 0.453	 [0.746 , 0.18]
donation I(ego*similarity)	**eval**			-0.315 0.208	† [0.439 , 0.806]		
donation change:							
1st period	**rate**	2.115 0.291	*** [1 , 0]	2.083 0.324	*** [1 , 0]	1.682 0.317	*** [1 , 0]
2nd period	**rate**	17.802 8.372	* [1 , 0]	4.545 1.080	*** [1 , 0]	3.681 1.108	*** [1 , 0.003]
linear	**eval**	-0.473 0.059	*** [0 , 1]	-0.349 0.043	*** [0 , 1]	-0.373 0.066	*** [0 , 1]
quadratic	**eval**					0.052 0.025	* [0.897 , 0.244]
average similarity	eval	-0.035 0.735	 [0.797 , 0.693]	-0.560 0.630	 [0.387 , 0.901]	0.105 0.107	 [0.886 , 0.547]
I(quadratic*avg similarity)	eval					0.119 0.118	 [0.901 , 0.231]
covariate based change:							
effect from gender	**eval**	0.353 0.104	*** [0.995 , 0]	0.144 0.075	† [0.987 , 0.025]	-0.013 0.027	 [0.761 , 0.769]
goodness of fit:		μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]
GOF (outdegree)		0.318 0.309	*** [37 , 28]	0.448 0.375	*** [17 , 12]	0.303 0.296	*** [37 , 24]
GOF (behavior)		0.329 0.278	*** [37 , 28]	0.493 0.331	*** [17 , 14]	0.295 0.285	*** [37 , 27]
GOF (financial decision making)			[61 , 35]		[54 , 36]		[57 , 32]

$^{***}p < 0.01$, $^{**}0.01 < p < 0.05$, $^{*}0.05 < p < 0.1$, $^{\dagger}p < 0.1$

Table 6.25: **Saving in friendship and advice networks across countries**

		Switzerland				Poland			
		friendship		advice		friendship		advice	
effect	function	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p
network structure change:									
1st period	**rate**	5.748 0.499	*** [1 , 0]	10.541 1.644	*** [1 , 0]	5.071 0.522	*** [1 , 0]	8.935 1.055	*** [1 , 0]
2nd period	**rate**	6.443 0.483	*** [1 , 0]	8.968 1.175	*** [1 , 0]	5.035 0.680	*** [1 , 0]	10.277 1.677	*** [1 , 0]
density	**eval**	-1.886 0.130	*** [0 , 1]	-2.271 0.150	*** [0 , 1]	-1.873 0.127	*** [0 , 1]	-1.693 0.108	*** [0 , 1]
reciprocity	**eval**	1.237 0.080	*** [1 , 0]	0.756 0.203	*** [0.998 , 0]	0.696 0.116	*** [1 , 0]	0.436 0.156	** [0.997 , 0]
transitivity	**eval**	1.352 0.090	*** [1 , 0]	1.277 0.096	*** [1 , 0]	1.441 0.136	*** [1 , 0]	1.254 0.108	*** [1 , 0]
popularity	**eval**	-0.127 0.021	*** [0 , 1]	-0.031 0.016	. [0.01 , 0.993]	-0.117 0.033	*** [0 , 1]	-0.091 0.025	*** [0 , 1]
same gender	**eval**	0.372 0.075	*** [1 , 0]	0.323 0.116	** [0.99 , 0]	0.545 0.094	*** [1 , 0]	0.422 0.077	*** [1 , 0]
sav alter	**eval**	0.018 0.021	 [0.739 , 0.232]	0.019 0.022	 [0.715 , 0.111]	0.036 0.026	 [0.977 , 0.097]	0.006 0.020	 [0.521 , 0.326]
sav ego	**eval**	-0.005 0.017	 [0.26 , 0.721]	-0.007 0.016	 [0.366 , 0.831]	0.002 0.030	 [0.627 , 0.388]	0.001 0.025	 [0.322 , 0.395]
sav similarity	**eval**	0.744 0.313	* [0.987 , 0.029]	0.129 0.373	 [0.414 , 0.198]	0.743 0.455	 [0.986 , 0.163]	-0.026 0.360	 [0.583 , 0.664]
savings change:									
1st period	**rate**	8.007 1.089	*** [1 , 0]	8.859 1.527	*** [1 , 0]	8.490 1.221	*** [1 , 0]	9.573 1.613	*** [1 , 0]
2nd period	**rate**	13.043 2.611	*** [1 , 0]	7.437 2.882	** [1 , 0]	29.443 10.185	*** [1 , 0]	7.850 2.262	*** [1 , 0]
linear	**eval**	-0.053 0.018	*** [0.001 , 0.995]	-0.147 0.030	*** [0 , 1]	-0.057 0.017	*** [0.001 , 0.997]	-0.102 0.026	*** [0 , 1]
average similarity	**eval**	0.793 0.407	† [0.956 , 0.048]	1.220 0.732	† [0.935 , 0.052]	1.039 0.583	† [0.995 , 0.087]	1.848 0.766	* [0.924 , 0.043]
effect from gender	**eval**	0.043 0.035	 [0.919 , 0.289]	0.047 0.062	 [0.748 , 0.416]	-0.028 0.037	 [0.435 , 0.768]	0.028 0.055	 [0.763 , 0.323]
goodness of fit:		μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]
GOF (outdegree)		0.419 0.000	*** [20 , 18]	0.231 0.005	*** [21 , 17]	0.150 0.000	** [20 , 10]	0.455 0.030	*** [14 , 13]
GOF (behavior)		0.306 0.002	*** [20 , 15]	0.218 0.000	*** [21 , 14]	0.269 0.000	*** [20 , 13]	0.356 0.001	** [14 , 10]
GOF (allocations)			[62 , 37]		[64 , 40]		[63 , 38]		[63 , 41]

$^{***}p < 0.01$, $^{**}0.01 < p < 0.05$, $^{*}0.05 < p < 0.1$, $^{\dagger}p < 0.1$

Table 6.26: **Consumption in friendship and advice networks across countries**

		Switzerland				Poland			
		friendship		advice		friendship		advice	
effect	function	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p
network structure change:									
1st period	**rate**	5.963 0.737	*** [1 , 0]	9.077 1.413	*** [1 , 0]	6.036 1.044	*** [1 , 0]	6.237 0.691	*** [1 , 0]
2nd period	**rate**	6.633 0.627	*** [1 , 0]	8.016 1.598	*** [1 , 0]	4.943 0.607	*** [1 , 0]	8.661 1.463	*** [1 , 0]
density	**eval**	-1.661 0.157	*** [0 , 1]	-2.235 0.135	*** [0 , 1]	-1.760 0.170	*** [0 , 1]	-1.825 0.177	*** [0 , 1]
reciprocity	**eval**	1.492 0.110	*** [1 , 0]	0.904 0.138	*** [1 , 0]	0.881 0.147	*** [1 , 0]	0.429 0.106	*** [1 , 0]
transitivity	**eval**	1.438 0.098	*** [1 , 0]	1.344 0.093	*** [1 , 0]	1.498 0.141	*** [1 , 0]	1.201 0.094	*** [1 , 0]
popularity	**eval**	-0.217 0.031	*** [0 , 1]	-0.062 0.020	*** [0 , 1]	-0.130 0.043	*** [0.002 , 0.999]	-0.068 0.027	* [0 , 1]
same gender	**eval**	0.355 0.078	*** [1 , 0]	0.336 0.115	*** [0.997 , 0]	0.482 0.143	*** [1 , 0]	0.564 0.069	*** [1 , 0]
con alter	**eval**	0.037 0.045	 [0.789 , 0.168]	0.011 0.021	 [0.64 , 0.233]	0.006 0.067	 [0.545 , 0.501]	0.006 0.024	 [0.697 , 0.48]
con ego	**eval**	0.046 0.035	 [0.97 , 0.194]	-0.003 0.018	 [0.389 , 0.455]	0.022 0.077	 [0.685 , 0.245]	-0.008 0.039	 [0.147 , 0.389]
con similarity	**eval**	0.595 0.724	 [0.789 , 0.128]	0.447 0.283	† [0.99 , 0.047]	1.087 0.931	 [0.976 , 0.166]	-0.133 0.430	 [0.57 , 0.782]
consumption change:									
1st period	**eval**	5.899 1.131	*** [1 , 0]	8.277 1.879	*** [1 , 0]	5.330 1.142	*** [1 , 0]	12.169 2.373	*** [1 , 0]
2nd period	**eval**	10.881 2.559	*** [1 , 0]	20.787 6.597	*** [1 , 0]	11.301 2.700	*** [1 , 0]	7.441 1.575	*** [1 , 0]
linear	**eval**	-0.090 0.022	*** [0 , 1]	-0.023 0.030	 [0.14 , 0.45]	-0.143 0.033	*** [0 , 1]	-0.005 0.023	 [0.671 , 0.558]
average similarity	**eval**	1.561 0.480	*** [0.993 , 0.005]	-0.050 0.589	 [0.506 , 0.751]	1.099 0.987	 [0.83 , 0.301]	2.253 1.119	* [0.97 , 0.001]
effect from gender	**eval**	0.057 0.046	 [0.977 , 0.29]	0.017 0.049	 [0.817 , 0.312]	0.061 0.058	 [0.959 , 0.339]	-0.041 0.041	 [0.316 , 0.855]
goodness of fit:		μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]
GOF (outdegree)		0.374 0.000	** [13 , 10]	0.176 0.010	* [11 , 7]	0.117 0.000	*** [23 , 11]	0.489 0.058	*** [12 , 12]
GOF (behavior)		0.471 0.054	*** [13 , 13]	0.531 0.014	*** [11 , 10]	0.234 0.000	*** [23 , 16]	0.251 0.000	* [12 , 10]
GOF (allocations)			[62 , 37]		[64 , 40]		[63 , 38]		[63 , 41]

$^{***}p < 0.01$, $^{**}0.01 < p < 0.05$, $^{*}0.05 < p < 0.1$, $^{\dagger}p < 0.1$

Table 6.27: **Giving in friendship and advice networks across countries**

		Switzerland				Poland			
		friendship		advice		friendship		advice	
effect	function	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p
network structure change:									
1st period	**rate**	6.342 0.805	*** [1 , 0]	8.392 1.071	*** [1 , 0]	5.788 0.605	*** [1 , 0]	7.024 0.474	*** [1 , 0]
2nd period	**rate**	6.655 0.488	*** [1 , 0]	8.965 0.968	*** [1 , 0]	5.092 0.691	*** [1 , 0]	10.076 1.248	*** [1 , 0]
density	**eval**	-1.846 0.129	*** [0 , 1]	-1.985 0.217	*** [0 , 1]	-1.571 0.142	*** [0 , 1]	-1.726 0.157	*** [0 , 1]
reciprocity	**eval**	1.273 0.077	*** [1 , 0]	0.964 0.195	*** [1 , 0]	0.663 0.124	*** [1 , 0]	0.471 0.146	*** [0.998 , 0]
transitivity	**eval**	1.286 0.078	*** [1 , 0]	1.120 0.136	*** [1 , 0]	1.348 0.115	*** [1 , 0]	1.301 0.104	*** [1 , 0]
popularity	**eval**	-0.126 0.020	*** [0 , 1]	-0.078 0.024	*** [0.004 , 0.994]	-0.130 0.038	*** [0 , 0.998]	-0.081 0.029	*** [0 , 1]
same gender	**eval**	0.304 0.067	*** [1 , 0]	0.208 0.083	* [0.929 , 0.017]	0.429 0.090	*** [1 , 0]	0.496 0.083	*** [1 , 0]
giv alter	**eval**	0.018 0.040	 [0.475 , 0.728]	-0.064 0.068	 [0.319 , 0.709]	0.101 0.041	* [0.886 , 0.106]	0.041 0.049	 [0.782 , 0.6]
giv ego	**eval**	0.043 0.039	 [0.869 , 0.298]	-0.042 0.066	 [0.451 , 0.533]	0.019 0.038	 [0.739 , 0.495]	0.027 0.052	 [0.393 , 0.525]
giv similarity	**eval**	0.658 0.421	 [0.859 , 0.177]	0.132 0.648	 [0.695 , 0.351]	0.491 0.421	 [0.791 , 0.268]	0.089 0.484	 [0.676 , 0.51]
donation change:									
1st period	**eval**	1.999 0.302	*** [1 , 0]	3.632 1.095	*** [0.999 , 0.002]	1.618 0.268	*** [1 , 0]	2.125 0.502	*** [1 , 0]
2nd period	**eval**	17.621 10.210	† [1 , 0]	18.363 15.974	 [1 , 0]	3.687 0.880	*** [1 , 0]	1.744 0.519	*** [1 , 0]
linear	**eval**	-0.470 0.065	*** [0 , 1]	-0.488 0.138	*** [0.001 , 1]	-0.305 0.066	*** [0 , 1]	-0.214 0.059	*** [0 , 1]
average similarity	**eval**	-0.065 0.765	 [0.724 , 0.697]	0.321 2.654	 [0.678 , 0.481]	-0.659 1.228	 [0.479 , 0.839]	1.503 1.417	 [0.766 , 0.489]
effect from gender	**eval**	0.342 0.117	*** [0.985 , 0]	0.433 0.271	 [0.901 , 0.151]	0.163 0.122	 [0.861 , 0.047]	0.234 0.087	** [0.972 , 0.04]
goodness of fit:		μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]
GOF (outdegree)		0.453 0.000	*** [17 , 16]	0.337 0.014	*** [15 , 14]	0.162 0.000	*** [18 , 8]	0.423 0.056	*** [13 , 13]
GOF (behavior)		0.309 0.000	*** [17 , 13]	0.431 0.002	*** [15 , 13]	0.283 0.009	** [18 , 14]	0.252 0.002	** [13 , 12]
GOF (allocations)			[62 , 37]		[64 , 40]		[63 , 38]		[63 , 41]

$^{***}p < 0.01$, $^{**}0.01 < p < 0.05$, $^{*}0.05 < p < 0.1$, $^{\dagger}p < 0.1$

Table 6.28: **Savings and (adaptive capacity) in friendship networks**

		self-transcendence (stv)		**self-enhancement (sev)**		**conservation (cov)**		**openness to change (opv)**	
effect	function	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p
friendship selection:									
1st period	**rate**	7.697 0.672	*** [1 , 0]	7.720 0.661	*** [1 , 0]	7.877 0.751	*** [1 , 0]	7.362 0.759	*** [1 , 0]
2nd period	**rate**	6.990 0.676	*** [1 , 0]	7.416 0.645	*** [1 , 0]	7.248 0.553	*** [1 , 0]	6.988 0.723	*** [1 , 0]
density	**eval**	-1.789 0.080	*** [0 , 1]	-1.746 0.094	*** [0 , 1]	-1.795 0.078	*** [0 , 1]	-1.765 0.098	*** [0 , 1]
reciprocity	**eval**	1.222 0.072	*** [1 , 0]	1.247 0.087	*** [1 , 0]	1.132 0.104	*** [1 , 0]	1.156 0.072	*** [1 , 0]
transitivity	**eval**	1.318 0.052	*** [1 , 0]	1.356 0.057	*** [1 , 0]	1.330 0.054	*** [1 , 0]	1.328 0.056	*** [1 , 0]
popularity	**eval**	-0.098 0.016	*** [0 , 1]	-0.111 0.019	*** [0 , 1]	-0.089 0.016	*** [0 , 1]	-0.096 0.016	*** [0 , 1]
stv alter	eval	0.046 0.043	[0.702 , 0.044]						
stv ego	eval	-0.031 0.042	[0.017 , 0.514]						
stv similarity	**eval**	0.300 0.108	** [0.994 , 0.01]						
sev alter	eval			-0.044 0.039	[0.002 , 0.607]				
sev ego	eval			-0.011 0.040	[0.02 , 0.079]				
sev similarity	eval			0.215 0.133	[0.875 , 0.012]				
cov alter	eval					-0.033 0.030	[0.044 , 0.841]		
cov ego	eval					-0.048 0.035	[0.002 , 0.593]		
cov similarity	eval					-0.007 0.124	[0.234 , 0.349]		
opv alter	eval							-0.000 0.046	[0.168 , 0.205]
opv ego	eval							-0.050 0.055	[0.004 , 0.328]
opv similarity	eval							0.022 0.099	[0.531 , 0.446]
savings change:									
1st period	**rate**	7.311 0.846	*** [1 , 0]	12.134 3.864	*** [1 , 0]	6.958 0.747	*** [1 , 0]	12.575 3.463	*** [1 , 0]
2nd period	**rate**	8.192 1.696	*** [1 , 0]	8.036 1.709	*** [1 , 0]	7.480 1.456	*** [1 , 0]	19.262 7.823	* [1 , 0]
linear	**eval**	-0.073 0.023	*** [0 , 1]	-0.075 0.019	*** [0 , 1]	-0.083 0.020	*** [0 , 1]	-0.067 0.022	*** [0 , 0.999]
avg similarity	**eval**	1.834 0.476	*** [1 , 0]	1.953 0.591	*** [1 , 0]	1.636 0.500	*** [0.999 , 0]	1.572 0.480	*** [1 , 0]
effects from:									
self-control	**eval**	0.057 0.033	† [0.951 , 0.057]	0.084 0.034	* [0.997 , 0.02]	0.069 0.031	* [0.989 , 0.011]	0.052 0.034	 [0.88 , 0.073]
resilience	eval	-0.047 0.031	 [0.072 , 0.91]	-0.056 0.037	 [0.06 , 0.838]	-0.047 0.029	 [0.032 , 0.847]	-0.037 0.034	 [0.115 , 0.933]
self-transcendence	**eval**	-0.051 0.028	† [0.031 , 0.989]						
self-enhancement	eval			-0.018 0.022	 [0.069 , 0.832]				
conservation	**eval**					-0.041 0.022	† [0.025 , 0.969]		
openness to change	eval							-0.030 0.028	 [0.154 , 0.935]
average alter effects:									
social control	**eval**	0.050 0.181	 [767 , 0.723]	0.085 0.178	 [0.733 , 0.855]	0.076 0.166	 [0.792 , 0.727]	0.151 0.189	 [0.521 , 0.956]
resilience	**eval**	-0.146 0.172	 [0.980 , 0.537]	-0.269 0.162	† [0.998 , 0.428]	-0.305 0.169	† [0.997 , 0.256]	-0.215 0.184	 [0.987 , 0.519]
goodness of fit:		μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]
GOF (outdegree)		0.291 0.304	*** [40 , 28]	0.289 0.300	*** [39 , 27]	0.290 0.298	*** [42 , 28]	0.280 0.312	*** [39 , 25]
GOF (savings)		0.264 0.250	*** [40 , 29]	0.276 0.276	*** [39 , 29]	0.280 0.263	*** [42 , 31]	0.281 0.271	*** [39 , 29]
GOF (allocations)			[62 , 37]		[61 , 36]		[62 , 36]		[60 , 36]

$^{***}p < 0.01$, $^{**}0.01 < p < 0.05$, $^{*}0.05 < p < 0.1$, $^{\dagger}p < 0.1$

Table 6.29: **Consumption and (adaptive capacity) in friendship networks**

		conservation (cov)		**openness to change (opv)**		**self-enhancement (sev)**		**self-transcendence (stv)**	
effect	function	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p
friendship selection:									
1st period	**rate**	8.287 0.941	*** [1 , 0]	8.011 0.797	*** [1 , 0]	8.826 0.992	*** [1 , 0]	8.466 0.938	*** [1 , 0]
2nd period	**rate**	7.566 0.844	*** [1 , 0]	7.235 0.741	*** [1 , 0]	7.644 0.975	*** [1 , 0]	8.075 0.741	*** [1 , 0]
density	**eval**	-1.625 0.088	*** [0 , 1]	-1.616 0.082	*** [0 , 1]	-1.639 0.107	*** [0 , 1]	-1.663 0.089	*** [0 , 1]
reciprocity	**eval**	1.354 0.122	*** [1 , 0]	1.336 0.096	*** [1 , 0]	1.316 0.120	*** [1 , 0]	1.331 0.112	*** [1 , 0]
transitivity	**eval**	1.339 0.054	*** [1 , 0]	1.324 0.051	*** [1 , 0]	1.340 0.057	*** [1 , 0]	1.363 0.062	*** [1 , 0]
popularity	**eval**	-0.143 0.024	*** [0 , 1]	-0.136 0.019	*** [0 , 1]	-0.143 0.030	*** [0 , 1]	-0.147 0.024	*** [0 , 1]
cov alter	eval	-0.020 0.034	[0.076 , 0.679]						
cov ego	eval	0.010 0.026	[0.754 , 0.135]						
cov similarity	eval	0.141 0.113	[0.945 , 0.066]						
opv alter	eval			-0.007 0.036	[0.285 , 0.593]				
opv ego	eval			-0.065 0.050	[0.001 , 0.609]				
opv similarity	eval			-0.012 0.093	[0.565 , 0.701]				
sev alter	**eval**					-0.073 0.034	* [0.001 , 0.977]		
sev ego	eval					0.029 0.025	[0.86 , 0.144]		
sev similarity	eval					0.224 0.157	[0.827 , 0.011]		
stv alter	eval							-0.011 0.045	[0.134 , 0.233]
stv ego	**eval**							-0.095 0.044	* [0 , 0.953]
stv similarity	**eval**							0.286 0.119	* [0.991 , 0.002]
consumption change:									
1st period	**rate**	7.055 1.235	*** [1 , 0]	6.041 0.944	*** [1 , 0]	6.695 1.349	*** [1 , 0]	7.517 1.293	*** [1 , 0]
2nd period	**rate**	19.014 6.511	*** [1 , 0]	19.074 7.044	** [1 , 0]	8.212 1.373	*** [1 , 0]	15.719 3.952	*** [1 , 0]
linear	**eval**	-0.050 0.019	** [0.007 , 0.982]	-0.064 0.019	*** [0 , 0.998]	-0.047 0.020	* [0.013 , 0.967]	-0.056 0.017	*** [0.001 , 1]
avg similarity	**eval**	1.152 0.451	* [0.89 , 0.024]	1.141 0.438	** [0.926 , 0.02]	1.218 0.500	* [0.848 , 0.024]	0.978 0.437	* [0.882 , 0.025]
effects from:									
self-control	**eval**	-0.089 0.033	** [0.023 , 0.999]	-0.078 0.034	* [0.051 , 0.998]	-0.082 0.035	* [0.051 , 0.999]	-0.085 0.030	*** [0.016 , 0.999]
resilience	eval	0.017 0.031	[0.89 , 0.19]	0.010 0.031	[0.807 , 0.242]	0.000 0.035	[0.681 , 0.35]	0.046 0.029	[0.991 , 0.065]
conservation	eval	0.040 0.025	[0.984 , 0.015]						
openness to change	eval			0.058 0.043	[0.72 , 0.004]				
self-enhancement	**eval**					0.039 0.022	† [0.95 , 0.064]		
self-transcendence	eval							0.032 0.029	[0.725 , 0.061]
average alter effects:									
self-control	eval	-0.092 0.262	[0.937 , 0.573]	-0.186 0.232	[0.962 , 0.435]	-0.124 0.232	[0.913 , 0.652]	-0.029 0.236	[0.909 , 0.596]
resilience	eval	0.108 0.183	[0.589 , 0.944]	0.295 0.201	[0.333 , 0.992]	0.151 0.196	[0.485 , 0.975]	0.237 0.174	[0.302 , 0.987]
goodness of fit:		μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]
GOF (outdegree)		0.264 0.302	*** [36 , 23]	0.254 0.314	*** [36 , 22]	0.249 0.300	*** [36 , 22]	0.217 0.283	*** [36 , 21]
GOF (spending)		0.323 0.311	*** [36 , 27]	0.333 0.306	*** [36 , 27]	0.321 0.305	*** [36 , 24]	0.315 0.300	*** [36 , 27]
GOF (allocations)			[62 , 37]		[61 , 36]		[62 , 36]		[60 , 36]

$^{***}p < 0.01$, $^{**}0.01 < p < 0.05$, $^{*}0.05 < p < 0.1$, $^{\dagger}p < 0.1$

Table 6.30: **Donations and (adaptive capacity) in friendship networks**

		openness to change (opv)		**conservation (cov)**		**self-transcendence (stv)**		**self-enhancement (sev)**	
effect	function	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p
friendship selection:									
1st period	**rate**	7.875 0.821	*** [1 , 0]	7.980 0.924	*** [1 , 0]	8.132 0.960	*** [1 , 0]	8.011 0.753	*** [1 , 0]
2nd period	**rate**	6.999 0.536	*** [1 , 0]	6.863 0.579	*** [1 , 0]	6.732 0.574	*** [1 , 0]	7.081 0.551	*** [1 , 0]
density	**eval**	-1.684 0.082	*** [0 , 1]	-1.712 0.087	*** [0 , 1]	-1.693 0.077	*** [0 , 1]	-1.658 0.089	*** [0 , 1]
reciprocity	**eval**	1.166 0.102	*** [1 , 0]	1.132 0.114	*** [1 , 0]	1.202 0.126	*** [1 , 0]	1.153 0.102	*** [1 , 0]
transitivity	**eval**	1.321 0.052	*** [1 , 0]	1.290 0.055	*** [1 , 0]	1.321 0.054	*** [1 , 0]	1.284 0.050	*** [1 , 0]
popularity	**eval**	-0.115 0.018	*** [0 , 1]	-0.098 0.018	*** [0 , 1]	-0.113 0.019	*** [0 , 1]	-0.099 0.018	*** [0 , 1]
opv alter	eval	0.001 0.033	[0.392 , 0.316]						
opv ego	eval	-0.060 0.039	[0.002 , 0.642]						
opv similarity	eval	0.002 0.099	[0.299 , 0.346]						
cov alter	**eval**			-0.055 0.031	† [0.012 , 0.938]				
cov ego	eval			-0.034 0.037	[0.016 , 0.516]				
cov similarity	eval			-0.005 0.119	[0.346 , 0.375]				
stv alter	eval					-0.031 0.039	[0.045 , 0.512]		
stv ego	eval					-0.022 0.035	[0.042 , 0.437]		
stv similarity	**eval**					0.298 0.125	* [0.985 , 0]		
sev alter	**eval**							-0.050 0.028	† [0.001 , 0.908]
sev ego	eval							0.022 0.025	[0.318 , 0.086]
sev similarity	**eval**							0.373 0.117	*** [0.998 , 0]
donations change:									
1st period	**rate**	4.588 1.730	** [1 , 0]	1.699 0.264	*** [1 , 0]	2.124 0.275	*** [1 , 0]	5.070 2.102	* [1 , 0]
2nd period	**rate**	13.137 5.777	* [1 , 0]	4.069 1.068	*** [1 , 0]	9.640 4.940	. [1 , 0]	4.919 1.575	*** [1 , 0]
linear	**eval**	-0.405 0.054	*** [0 , 1]	-0.444 0.066	*** [0 , 1]	-0.408 0.053	*** [0 , 1]	-0.380 0.052	*** [0 , 1]
avg similarity	eval	-0.521 0.788	[0.56 , 0.767]	-0.494 0.914	[0.559 , 0.801]	-0.021 0.765	[0.736 , 0.697]	-0.054 0.769	[0.83 , 0.767]
effects from:									
self-control	eval	0.044 0.065	[0.651 , 0.506]	-0.004 0.080	[0.386 , 0.626]	0.008 0.063	[0.597 , 0.644]	0.062 0.053	[0.927 , 0.264]
resilience	eval	-0.054 0.052	[0.181 , 0.979]	-0.030 0.066	[0.243 , 0.924]	-0.023 0.059	[0.273 , 0.878]	-0.027 0.054	[0.367 , 0.875]
openness to change	**eval**	0.092 0.053	† [0.957 , 0.082]						
conservation	eval			0.014 0.049	[0.887 , 0.304]				
self-transcendence	**eval**					0.104 0.050	* [0.998 , 0.044]		
self-enhancement	eval							0.004 0.038	[0.907 , 0.576]
average alter effects:									
self-control	eval	0.070 0.371	[0.840 , 0.848]	0.164 0.345	[0.845 , 0.843]	0.070 0.634	[0.942 , 0.711]	0.017 0.547	[0.911 , 0.694]
resilience	eval	0.008 0.368	[0.722 , 0.872]	0.193 0.364	[0.583 , 0.942]	0.421 0.521	[0.677 , 0.935]	0.268 0.506	[0.692 , 0.900]
goodness of fit:		μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]
GOF (outdegree)		0.235 0.272	*** [41 , 26]	0.239 0.291	*** [40 , 24]	0.273 0.306	*** [38 , 25]	0.252 0.288	*** [42 , 27]
GOF (donations)		0.345 0.279	*** [41 , 34]	0.311 0.265	*** [40 , 33]	0.305 0.248	*** [38 , 31]	0.315 0.246	*** [42 , 37]
GOF (allocations)			[62 , 37]		[61 , 36]		[62 , 36]		[60 , 36]

$^{***}p < 0.01$, $^{**}0.01 < p < 0.05$, $^{*}0.05 < p < 0.1$, $^{\dagger}p < 0.1$

Table 6.31: **Savings and (cognitive capacity) in friendship networks**

		self-transcendence (stv)		**self-enhancement (sev)**		**conservation (cov)**		**openness to change (opv)**	
effect	function	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p
friendship selection:									
1st period	**rate**	7.840 0.747	*** [1 , 0]	7.472 0.681	*** [1 , 0]	7.777 0.781	*** [1 , 0]	7.574 0.698	*** [1 , 0]
2nd period	**rate**	6.443 0.614	*** [1 , 0]	6.779 0.637	*** [1 , 0]	6.828 0.680	*** [1 , 0]	7.289 0.604	*** [1 , 0]
density	**eval**	-1.749 0.099	*** [0 , 1]	-1.702 0.104	*** [0 , 1]	-1.762 0.101	*** [0 , 1]	-1.717 0.095	*** [0 , 1]
reciprocity	**eval**	1.201 0.120	*** [1 , 0]	1.211 0.115	*** [1 , 0]	1.175 0.112	*** [1 , 0]	1.177 0.110	*** [1 , 0]
transitivity	**eval**	1.334 0.053	*** [1 , 0]	1.406 0.055	*** [1 , 0]	1.379 0.055	*** [1 , 0]	1.368 0.051	*** [1 , 0]
popularity	**eval**	-0.105 0.019	*** [0 , 1]	-0.131 0.023	*** [0 , 1]	-0.111 0.020	*** [0 , 1]	-0.117 0.019	*** [0 , 1]
stv alter	eval	0.042 0.042	[0.673 , 0.044]						
stv ego	eval	-0.025 0.037	[0.056 , 0.56]						
stv similarity	**eval**	0.387 0.120	*** [0.999 , 0]						
sev alter	eval			-0.045 0.031	[0.002 , 0.846]				
sev ego	eval			-0.001 0.033	[0.066 , 0.109]				
sev similarity	**eval**			0.290 0.130	* [0.966 , 0.001]				
cov alter	eval					-0.048 0.032	[0.011 , 0.926]		
cov ego	eval					-0.044 0.037	[0.01 , 0.398]		
cov similarity	eval					0.041 0.117	[0.665 , 0.302]		
opv alter	eval							-0.014 0.036	[0.154 , 0.458]
opv ego	eval							-0.047 0.043	[0.008 , 0.467]
opv similarity	eval							0.088 0.091	[0.79 , 0.25]
savings change:									
1st period	**rate**	7.747 0.837	*** [1 , 0]	6.287 0.681	*** [1 , 0]	7.064 0.787	*** [1 , 0]	16.181 7.027	* [1 , 0]
2nd period	**rate**	8.963 1.758	*** [1 , 0]	7.212 1.507	*** [1 , 0]	8.551 1.676	*** [1 , 0]	10.248 1.612	*** [1 , 0]
linear	**eval**	-0.063 0.018	*** [0 , 1]	-0.072 0.017	*** [0 , 1]	-0.079 0.018	*** [0 , 1]	-0.067 0.016	*** [0 , 1]
average similarity	**eval**	1.588 0.440	*** [0.995 , 0.001]	1.328 0.492	** [0.988 , 0.001]	1.311 0.468	** [0.978 , 0.001]	1.281 0.385	*** [0.999 , 0.001]
effects from:									
financial literacy	eval	-0.049 0.049	[0.116 , 0.746]	0.002 0.043	[0.397 , 0.569]	0.027 0.045	[0.643 , 0.424]	-0.002 0.040	[0.497 , 0.515]
mathematics	eval	0.046 0.037	[0.969 , 0.327]	0.029 0.035	[0.827 , 0.391]	0.021 0.036	[0.802 , 0.521]	0.037 0.033	[0.944 , 0.35]
linguistics	**eval**	0.035 0.038	[0.939 , 0.43]	0.054 0.034	[0.987 , 0.208]	0.059 0.031	† [0.974 , 0.19]	0.054 0.034	[0.986 , 0.156]
self-transcendence	**eval**	-0.052 0.027	† [0.006 , 0.956]						
self-enhancement	eval			-0.021 0.018	[0.051 , 0.912]				
conservation	eval					-0.032 0.022	[0.102 , 0.971]		
openness to change	**eval**							-0.035 0.021	† [0.081 , 0.99]
average alter effects:									
financial literacy	eval	-0.016 0.259	[0.656 , 0.429]	-0.086 0.241	[0.714 , 0.431]	-0.110 0.230	[0.763 , 0.328]	-0.014 0.206	[0.677 , 0.454]
mathematics	eval	0.066 0.208	[0.550 , 0.839]	0.125 0.239	[0.407 , 0.926]	0.023 0.200	[0.682 , 0.776]	-0.009 0.257	[0.690 , 0.702]
linguistics	eval	0.011 0.242	[0.707 , 0.716]	-0.117 0.318	[0.830 , 0.616]	0.121 0.272	[0.533 , 0.906]	-0.040 0.320	[0.717 , 0.719]
goodness of fit:		μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]
GOF (outdegree)		0.278 0.301	*** [44 , 31]	0.262 0.288	*** [46 , 30]	0.277 0.287	*** [46 , 31]	0.257 0.296	*** [47 , 30]
GOF (savings)		0.271 0.279	*** [44 , 31]	0.275 0.267	*** [46 , 33]	0.287 0.266	*** [46 , 34]	0.266 0.257	*** [47 , 35]
GOF (allocations)			[62 , 37]		[64 , 40]		[63 , 38]		[63 , 41]

$^{***}p < 0.01$, $^{**}0.01 < p < 0.05$, $^{*}0.05 < p < 0.1$, $^{\dagger}p < 0.1$

Table 6.32: **Consumption and (cognitive capacity) in friendship networks**

		conservation (cov)		**openness to change (opv)**		**self-enhancement (sev)**		**self-transcendence (stv)**	
effect	function	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p
friendship selection:									
1st period	**rate**	8.186 0.879	*** [1 , 0]	7.815 0.838	*** [1 , 0]	7.817 0.745	*** [1 , 0]	8.385 0.889	*** [1 , 0]
2nd period	**rate**	8.003 0.770	*** [1 , 0]	7.317 0.764	*** [1 , 0]	7.321 0.740	*** [1 , 0]	7.871 0.702	*** [1 , 0]
density	**eval**	-1.636 0.081	*** [0 , 1]	-1.654 0.083	*** [0 , 1]	-1.713 0.078	*** [0 , 1]	-1.661 0.085	*** [0 , 1]
reciprocity	**eval**	1.382 0.112	*** [1 , 0]	1.361 0.097	*** [1 , 0]	1.376 0.094	*** [1 , 0]	1.313 0.103	*** [1 , 0]
transitivity	**eval**	1.368 0.059	*** [1 , 0]	1.374 0.060	*** [1 , 0]	1.362 0.048	*** [1 , 0]	1.380 0.058	*** [1 , 0]
popularity	**eval**	-0.147 0.024	*** [0 , 1]	-0.146 0.021	*** [0 , 1]	-0.137 0.021	*** [0 , 1]	-0.148 0.022	*** [0 , 1]
cov alter	eval	-0.046 0.036	[0.011 , 0.866]						
cov ego	eval	0.026 0.025	[0.957 , 0.05]						
cov similarity	eval	0.122 0.118	[0.834 , 0.114]						
opv alter	eval			-0.024 0.042	[0.065 , 0.602]				
opv ego	**eval**			-0.099 0.050	† [0 , 0.852]				
opv similarity	eval			-0.034 0.095	[0.346 , 0.794]				
sev alter	**eval**					-0.060 0.031	† [0.001 , 0.919]		
sev ego	eval					0.025 0.022	[0.854 , 0.124]		
sev similarity	**eval**					0.252 0.120	* [0.971 , 0.005]		
stv alter	eval							0.004 0.045	[0.252 , 0.178]
stv ego	**eval**							-0.083 0.044	† [0 , 0.912]
stv similarity	**eval**							0.276 0.112	* [0.99 , 0.002]
consumption change:									
1st period	**rate**	8.177 1.277	*** [1 , 0]	6.905 1.189	*** [1 , 0]	6.817 1.126	*** [1 , 0]	7.116 1.276	*** [1 , 0]
2nd period	**rate**	7.139 1.204	*** [1 , 0]	7.679 1.164	*** [1 , 0]	8.099 1.314	*** [1 , 0]	8.263 1.249	*** [1 , 0]
linear	**eval**	-0.053 0.017	*** [0.004 , 0.991]	-0.064 0.020	*** [0 , 0.998]	-0.056 0.017	*** [0.002 , 0.998]	-0.058 0.017	*** [0.001 , 1]
average similarity	**eval**	1.415 0.423	*** [0.993 , 0.005]	1.475 0.415	*** [0.998 , 0.003]	1.416 0.407	*** [0.999 , 0.001]	1.152 0.411	** [0.98 , 0.017]
effects from:									
financial literacy	eval	-0.046 0.057	[0.08 , 0.653]	-0.028 0.056	[0.173 , 0.536]	0.002 0.054	[0.327 , 0.386]	0.033 0.059	[0.553 , 0.131]
mathematics	eval	-0.040 0.032	[0.276 , 0.941]	-0.050 0.033	[0.241 , 0.943]	-0.040 0.031	[0.296 , 0.856]	-0.031 0.031	[0.264 , 0.835]
linguistics	**eval**	-0.036 0.032	[0.527 , 0.389]	-0.059 0.032	† [0.134 , 0.896]	-0.029 0.030	[0.425 , 0.703]	-0.025 0.031	[0.386 , 0.742]
conservation	eval	0.028 0.026	[0.758 , 0.063]						
openness to change	eval			0.052 0.041	[0.664 , 0.011]				
self-enhancement	eval					0.027 0.019	[0.871 , 0.053]		
self-transcendence	eval							0.045 0.029	[0.895 , 0.016]
average alter effects:									
financial literacy	eval	0.023 0.251	[0.307 , 0.788]	0.069 0.252	[0.835 , 0.743]	0.118 0.220	[0.258 , 0.798]	0.060 0.243	[0.435 , 0.699]
mathematics	eval	-0.390 0.544	[0.893 , 0.450]	-0.417 0.373	[0.967 , 0.313]	-0.317 0.384	[0.838 , 0.566]	-0.092 0.672	[0.604 , 0.779]
linguistics	eval	0.165 0.456	[0.596 , 0.791]	-0.094 0.384	[0.771 , 0.657]	0.260 0.518	[0.567 , 0.841]	0.065 0.701	[0.594 , 0.778]
goodness of fit:		μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]
GOF (outdegree)		0.260 0.297	*** [39 , 23]	0.262 0.311	*** [36 , 21]	0.269 0.316	*** [38 , 24]	0.240 0.300	*** [37 , 22]
GOF (consumption)		0.328 0.304	*** [39 , 29]	0.330 0.308	*** [36 , 27]	0.331 0.300	*** [38 , 30]	0.308 0.298	*** [37 , 26]
GOF (allocations)			[62 , 37]		[64 , 40]		[63 , 38]		[63 , 41]

$^{***}p < 0.01$, $^{**}0.01 < p < 0.05$, $^{*}0.05 < p < 0.1$, $^{\dagger}p < 0.1$

Table 6.33: **Donations and (cognitive capacity) in friendship networks**

		openness to change (opv)		**conservation (cov)**		**self-transcendence (stv)**		**self-enhancement (sev)**	
effect	function	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p
friendship selection:									
1st period	**rate**	6.974 0.805	*** [1 , 0]	7.845 0.946	*** [1 , 0]	7.183 0.771	*** [1 , 0]	8.504 1.060	*** [1 , 0]
2nd period	**rate**	6.646 0.546	*** [1 , 0]	7.380 0.804	*** [1 , 0]	6.558 0.652	*** [1 , 0]	7.518 0.746	*** [1 , 0]
density	**eval**	-1.647 0.076	*** [0 , 1]	-1.655 0.079	*** [0 , 1]	-1.649 0.083	*** [0 , 1]	-1.648 0.084	*** [0 , 1]
reciprocity	**eval**	1.300 0.072	*** [1 , 0]	1.237 0.105	*** [1 , 0]	1.266 0.076	*** [1 , 0]	1.166 0.103	*** [1 , 0]
transitivity	**eval**	1.359 0.056	*** [1 , 0]	1.389 0.055	*** [1 , 0]	1.358 0.052	*** [1 , 0]	1.316 0.054	*** [1 , 0]
popularity	**eval**	-0.141 0.019	*** [0 , 1]	-0.141 0.022	*** [0 , 1]	-0.129 0.020	*** [0 , 1]	-0.112 0.021	*** [0 , 1]
opv alter	eval	-0.008 0.034	[0.227 , 0.457]						
opv ego	**eval**	-0.078 0.045	† [0.001 , 0.741]						
opv similarity	eval	-0.016 0.092	[0.178 , 0.565]						
cov alter	eval			-0.023 0.038	[0.054 , 0.565]				
cov ego	eval			0.023 0.025	[0.624 , 0.059]				
cov similarity	eval			0.019 0.102	[0.752 , 0.472]				
stv alter	eval					-0.013 0.039	[0.147 , 0.381]		
stv ego	eval					-0.041 0.036	[0.015 , 0.691]		
stv similarity	eval					0.170 0.110	[0.901 , 0.037]		
sev alter	**eval**							-0.042 0.023	† [0.017 , 0.949]
sev ego	**eval**							0.039 0.024	† [0.908 , 0.032]
sev similarity	**eval**							0.344 0.130	** [0.985 , 0]
donations change:									
1st period	**rate**	1.777 0.220	*** [1 , 0]	1.629 0.193	*** [1 , 0]	1.792 0.233	*** [1 , 0]	1.542 0.205	*** [1 , 0]
2nd period	**rate**	5.850 1.503	*** [1 , 0]	13.559 8.394	*** [1 , 0]	5.094 1.231	*** [1 , 0]	2.842 0.542	*** [1 , 0]
linear	**eval**	-0.401 0.054	*** [0 , 1]	-0.456 0.071	*** [0 , 1]	-0.414 0.054	*** [0 , 1]	-0.421 0.064	*** [0 , 1]
average similarity	eval	0.195 0.837	[0.776 , 0.539]	0.002 0.911	[0.52 , 0.731]	0.542 0.800	[0.901 , 0.394]	0.011 0.791	[0.739 , 0.808]
effects from:									
financial literacy	eval	-0.022 0.103	[0.374 , 0.651]	-0.077 0.124	[0.295 , 0.698]	-0.042 0.114	[0.261 , 0.437]	0.006 0.110	[0.485 , 0.705]
mathematics	eval	0.030 0.105	[0.731 , 0.656]	0.115 0.121	[0.876 , 0.424]	0.014 0.105	[0.699 , 0.587]	0.071 0.098	[0.766 , 0.548]
linguistics	eval	0.079 0.100	[0.752 , 0.344]	0.071 0.117	[0.63 , 0.624]	0.094 0.102	[0.777 , 0.422]	-0.006 0.099	[0.48 , 0.613]
openness to change	eval	0.074 0.057	[0.988 , 0.07]						
conservation	eval			0.026 0.051	[0.709 , 0.746]				
self-transcendence	**eval**					0.152 0.053	*** [1 , 0.013]		
self-enhancement	eval							0.029 0.047	[0.933 , 0.338]
average alter effects:									
financial literacy	eval	-0.317 0.540	[0.922 , 0.362]	-0.222 0.587	[0.884 , 0.422]	-0.139 0.486	[0.877 , 0.492]	-0.719 0.694	[0.962 , 0.263]
mathematics	eval	0.267 754	[0.353 , 0.858]	0.214 1.010	[0.433 , 0.688]	-0.032 0.617	[0.638 , 0.377]	-0.019 0.710	[0.577 , 0.795]
linguistics	eval	-0.304 0.418	[0.949 , 0.319]	-0.028 0.365	[0.797 , 0.432]	-0.369 0.400	[0.982 , 0.266]	-0.148 0.333	[0.916 , 0.423]
goodness of fit:		μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]
GOF (outdegree)		0.257 0.309	*** [42 , 25]	0.261 0.305	*** [43 , 25]	0.261 0.300	*** [43 , 26]	0.258 0.313	*** [40 , 23]
GOF (donations)		0.368 0.298	*** [42 , 36]	0.364 0.292	*** [43 , 37]	0.350 0.289	*** [43 , 37]	0.333 0.271	*** [40 , 33]
GOF (allocations)			[62 , 37]		[64 , 40]		[63 , 38]		[63 , 41]

$^{***}p < 0.01$, $^{**}0.01 < p < 0.05$, $^{*}0.05 < p < 0.1$, $^{\dagger}p < 0.1$

Table 6.34: **Savings and (financial literacy) in friendship networks**

		self-transcendence (stv)		**self-enhancement (sev)**		**conservation (cov)**		**openness to change (opv)**	
effect	function	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p
friendship selection:									
1st period	**rate**	7.732 0.789	*** [1 , 0]	7.684 0.757	*** [1 , 0]	7.712 0.788	*** [1 , 0]	7.333 0.685	*** [1 , 0]
2nd period	**rate**	6.931 0.735	*** [1 , 0]	6.943 0.696	*** [1 , 0]	7.010 0.610	*** [1 , 0]	6.962 0.709	*** [1 , 0]
density	**eval**	-1.806 0.081	*** [0 , 1]	-1.779 0.087	*** [0 , 1]	-1.788 0.077	*** [0 , 1]	-1.800 0.085	*** [0 , 1]
reciprocity	**eval**	1.142 0.117	*** [1 , 0]	1.155 0.122	*** [1 , 0]	1.182 0.117	*** [1 , 0]	1.196 0.113	*** [1 , 0]
transitivity	**eval**	1.329 0.056	*** [1 , 0]	1.324 0.057	*** [1 , 0]	1.327 0.052	*** [1 , 0]	1.350 0.053	*** [1 , 0]
popularity	**eval**	-0.090 0.017	*** [0 , 1]	-0.099 0.019	*** [0 , 1]	-0.097 0.017	*** [0 , 1]	-0.109 0.019	*** [0 , 1]
stv alter	eval	0.043 0.040	[0.685 , 0.035]						
stv ego	eval	-0.041 0.038	[0.017 , 0.691]						
stv similarity	**eval**	0.363 0.121	*** [0.997 , 0]						
sev alter	eval			-0.034 0.036	[0.022 , 0.737]				
sev ego	eval			-0.010 0.033	[0.071 , 0.491]				
sev similarity	**eval**			0.385 0.140	** [0.987 , 0]				
cov alter	eval					-0.028 0.029	[0.082 , 0.777]		
cov ego	eval					-0.020 0.034	[0.048 , 0.384]		
cov similarity	eval					0.044 0.131	[0.299 , 0.099]		
opv alter	eval							0.017 0.039	[0.413 , 0.138]
opv ego	eval							-0.046 0.046	[0.009 , 0.387]
opv similarity	eval							0.040 0.097	[0.514 , 0.445]
savings change:									
1st period	**rate**	7.851 0.899	*** [1 , 0]	7.454 0.897	*** [1 , 0]	12.405 3.320	*** [1 , 0]	7.972 0.898	*** [1 , 0]
2nd period	**rate**	9.783 1.647	*** [1 , 0]	8.040 1.659	*** [1 , 0]	14.037 3.663	*** [1 , 0]	9.859 1.610	*** [1 , 0]
linear	**eval**	-0.081 0.022	*** [0 , 1]	-0.069 0.019	*** [0 , 1]	-0.088 0.018	*** [0 , 1]	-0.081 0.020	*** [0 , 1]
average similarity	**eval**	1.665 0.473	*** [0.996 , 0.001]	1.053 0.492	* [0.948 , 0.013]	1.484 0.485	*** [0.996 , 0]	1.175 0.479	* [0.975 , 0.002]
effects from:									
financial literacy	eval	-0.046 0.061	[0.116 , 0.606]	0.016 0.047	[0.723 , 0.222]	-0.002 0.045	[0.536 , 0.483]	-0.014 0.052	[0.393 , 0.315]
time preferences	**eval**	-0.021 0.017	 [0.03 , 0.957]	-0.025 0.014	† [0.053 , 0.983]	-0.028 0.014	* [0.011 , 0.973]	-0.035 0.017	* [0.033 , 0.974]
self-transcendence	**eval**	-0.056 0.025	* [0.002 , 0.989]						
self-enhancement	eval			-0.036 0.022	[0.035 , 0.999]				
conservation	**eval**					-0.033 0.019	† [0.042 , 0.978]		
openness to change	**eval**							-0.045 0.023	* [0.094 , 0.998]
average alter effects:									
financial literacy	eval	-0.016 0.259	[0.656 , 0.429]	-0.086 0.241	[0.714 , 0.431]	-0.110 0.230	[0.763 , 0.328]	-0.014 0.206	[0.677 , 0.454]
time preferences	eval	0.055 0.097	[0.311 , 0.816]	0.077 0.087	[0.219 , 0.966]	0.136 0.102	[0.190 , 0.951]	0.126 0.091	[0.224 , 0.880]
goodness of fit:		μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]
GOF (outdegree)		0.249 0.295	*** [46 , 28]	0.252 0.285	*** [48 , 30]	0.263 0.295	*** [44 , 27]	0.239 0.292	*** [49 , 30]
GOF (savings)		0.250 0.257	*** [46 , 31]	0.249 0.255	*** [48 , 33]	0.263 0.265	*** [44 , 32]	0.248 0.250	*** [49 , 35]
GOF (allocations)			[62 , 37]		[64 , 40]		[63 , 38]		[63 , 41]

$^{***}p < 0.01$, $^{**}0.01 < p < 0.05$, $^{*}0.05 < p < 0.1$, $^{\dagger}p < 0.1$

Table 6.35: **Consumption and (financial literacy) in friendship networks**

		conservation (cov)		**openness to change (opv)**		**self-enhancement (sev)**		**self-transcendence (stv)**	
effect	function	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p
friendship selection:									
1st period	**rate**	8.565 0.961	*** [1 , 0]	8.041 0.834	*** [1 , 0]	8.190 0.833	*** [1 , 0]	8.701 0.911	*** [1 , 0]
2nd period	**rate**	7.639 0.916	*** [1 , 0]	7.454 0.796	*** [1 , 0]	7.533 0.818	*** [1 , 0]	7.929 0.665	*** [1 , 0]
density	**eval**	-1.602 0.098	*** [0 , 1]	-1.634 0.080	*** [0 , 1]	-1.636 0.088	*** [0 , 1]	-1.652 0.091	*** [0 , 1]
reciprocity	**eval**	1.357 0.130	*** [1 , 0]	1.349 0.098	*** [1 , 0]	1.363 0.105	*** [1 , 0]	1.310 0.107	*** [1 , 0]
transitivity	**eval**	1.326 0.058	*** [1 , 0]	1.364 0.057	*** [1 , 0]	1.368 0.057	*** [1 , 0]	1.359 0.057	*** [1 , 0]
popularity	**eval**	-0.144 0.027	*** [0 , 1]	-0.141 0.021	*** [0 , 1]	-0.146 0.024	*** [0 , 1]	-0.146 0.023	*** [0 , 1]
cov alter	eval	-0.015 0.036	[0.109 , 0.615]						
cov ego	eval	0.017 0.027	[0.809 , 0.098]						
cov similarity	eval	0.174 0.124	[0.947 , 0.04]						
opv alter	eval			-0.011 0.039	[0.211 , 0.53]				
opv ego	**eval**			-0.090 0.051	† [0 , 0.781]				
opv similarity	eval			-0.023 0.093	[0.48 , 0.723]				
sev alter	eval					-0.043 0.040	[0.007 , 0.669]		
sev ego	eval					0.029 0.026	[0.83 , 0.023]		
sev similarity	**eval**					0.243 0.136	† [0.916 , 0.006]		
stv alter	eval							-0.009 0.046	[0.156 , 0.241]
stv ego	**eval**							-0.081 0.049	† [0 , 0.867]
stv similarity	**eval**							0.245 0.122	* [0.979 , 0.007]
consumption change:									
1st period	**rate**	7.508 1.391	*** [1 , 0]	6.835 1.177	*** [1 , 0]	6.849 1.194	*** [1 , 0]	7.356 1.367	*** [1 , 0]
2nd period	**rate**	7.712 1.229	*** [1 , 0]	15.249 3.972	*** [1 , 0]	7.979 1.341	*** [1 , 0]	7.910 1.258	*** [1 , 0]
linear	**eval**	-0.044 0.019	* [0.012 , 0.955]	-0.054 0.019	** [0.001 , 0.986]	-0.047 0.017	** [0.01 , 0.989]	-0.060 0.018	*** [0.001 , 1]
average similarity	**eval**	1.110 0.454	* [0.848 , 0.049]	1.330 0.421	*** [0.98 , 0.01]	1.251 0.402	*** [0.932 , 0.008]	0.971 0.424	* [0.957 , 0.04]
effects from:									
financial literacy	eval	-0.037 0.051	[0.199 , 0.694]	0.006 0.058	[0.401 , 0.321]	-0.010 0.046	[0.489 , 0.565]	0.047 0.067	[0.614 , 0.102]
time preferences	**eval**	0.024 0.020	[0.956 , 0.232]	0.019 0.020	† [0.951 , 0.152]	0.023 0.016	† [0.978 , 0.316]	0.021 0.021	[0.846 , 0.302]
conservation	eval	0.038 0.024	[0.973 , 0.027]						
openness to change	**eval**			0.084 0.033	* [0.888 , 0.001]				
self-enhancement	eval					0.018 0.018	[0.823 , 0.239]		
self-transcendence	**eval**							0.050 0.029	† [0.941 , 0.015]
average alter effects:									
financial literacy	eval	0.023 0.251	[0.307 , 0.788]	0.069 0.252	[0.835 , 0.743]	0.118 0.220	[0.258 , 0.798]	0.060 0.243	[0.435 , 0.699]
time preferences	eval	-0.064 0.092	[0.783 , 0.729]	-0.030 0.091	[0.835 , 0.743]	-0.044 0.081	[0.794 , 0.668]	-0.046 0.093	[0.754 , 0.644]
goodness of fit:		μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]
GOF (outdegree)		0.250 0.305	*** [38 , 22]	0.225 0.291	*** [42 , 22]	0.255 0.307	*** [39 , 25]	0.221 0.293	*** [41 , 25]
GOF (consumption)		0.309 0.299	*** [38 , 25]	0.301 0.298	*** [42 , 31]	0.342 0.311	*** [39 , 0.29]	0.267 0.285	*** [41 , 28]
GOF (allocations)			[62 , 37]		[64 , 40]		[63 , 38]		[63 , 41]

$^{***}p < 0.01$, $^{**}0.01 < p < 0.05$, $^{*}0.05 < p < 0.1$, $^{\dagger}p < 0.1$

Table 6.36: **Donations and (financial literacy) in friendship networks**

		openness to change (opv)		**conservation (cov)**		**self-transcendence (stv)**		**self-enhancement (sev)**	
effect	function	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p
friendship selection:									
1st period	**rate**	6.698 0.752	*** [1 , 0]	8.137 0.942	*** [1 , 0]	7.977 1.051	*** [1 , 0]	9.024 1.101	*** [1 , 0]
2nd period	**rate**	6.288 0.638	*** [1 , 0]	6.989 0.668	*** [1 , 0]	6.692 0.614	*** [1 , 0]	7.662 0.732	*** [1 , 0]
density	**eval**	-1.652 0.078	*** [0 , 1]	-1.673 0.085	*** [0 , 1]	-1.691 0.083	*** [0 , 1]	-1.708 0.094	*** [0 , 1]
reciprocity	**eval**	1.307 0.069	*** [1 , 0]	1.275 0.104	*** [1 , 0]	1.303 0.092	*** [1 , 0]	1.194 0.103	*** [1 , 0]
transitivity	**eval**	1.325 0.057	*** [1 , 0]	1.371 0.055	*** [1 , 0]	1.301 0.054	*** [1 , 0]	1.343 0.054	*** [1 , 0]
popularity	**eval**	-0.127 0.018	*** [0 , 1]	-0.137 0.022	*** [0 , 1]	-0.114 0.019	*** [0 , 1]	-0.107 0.020	*** [0 , 1]
opv alter	eval	0.006 0.034	[0.589 , 0.416]						
opv ego	eval	-0.039 0.046	[0.026 , 0.378]						
opv similarity	eval	-0.056 0.107	[0.152 , 0.614]						
cov alter	eval			-0.026 0.034	[0.041 , 0.566]				
cov ego	eval			0.005 0.028	[0.544 , 0.075]				
cov similarity	eval			0.006 0.102	[0.724 , 0.581]				
stv alter	eval					-0.005 0.047	[0.196 , 0.224]		
stv ego	eval					-0.017 0.039	[0.121 , 0.464]		
stv similarity	eval					0.188 0.120	[0.938 , 0.032]		
sev alter	eval							-0.031 0.024	[0.03 , 0.845]
sev ego	eval							0.016 0.032	[0.133 , 0.062]
sev similarity	**eval**							0.352 0.130	** [0.985 , 0]
donations change:									
1st period	**rate**	1.587 0.217	*** [1 , 0]	1.666 0.209	*** [1 , 0]	1.607 0.231	*** [1 , 0]	1.519 0.201	*** [1 , 0]
2nd period	**rate**	4.729 1.145	*** [1 , 0]	9.617 4.524	* [1 , 0]	5.382 1.205	*** [1 , 0]	3.088 0.540	*** [1 , 0]
linear	**eval**	-0.447 0.063	*** [0 , 1]	-0.450 0.063	*** [0 , 1]	-0.473 0.068	*** [0 , 1]	-0.491 0.074	*** [0 , 1]
average similarity	eval	-0.492 0.930	[0.618 , 0.631]	-1.058 0.821	[0.297 , 0.898]	0.035 0.920	[0.655 , 0.67]	-0.369 0.892	[0.539 , 0.866]
effects from:									
financial literacy	**eval**	-0.170 0.126	[0.224 , 0.901]	-0.202 0.115	† [0.149 , 0.948]	-0.109 0.127	[0.373 , 0.796]	-0.081 0.159	[0.408 , 0.758]
time preferences	eval	0.021 0.044	[0.54 , 0.56]	0.012 0.029	[0.506 , 0.777]	-0.002 0.047	[0.425 , 0.568]	-0.016 0.049	[0.368 , 0.741]
openness to change	eval	0.061 0.055	[0.896 , 0.155]						
conservation	eval			0.039 0.039	[0.68 , 0.479]				
self-transcendence	**eval**					0.163 0.065	* [0.999 , 0.016]		
self-enhancement	eval							0.000 0.040	[0.893 , 0.672]
average alter effects:									
financial literacy	eval	-0.317 0.540	[0.922 , 0.362]	-0.222 0.587	[0.884 , 0.422]	-0.139 0.486	[0.877 , 0.492]	-0.719 0.694	[0.962 , 0.263]
time preferences	eval	-0.086 0.146	[0.942 , 0.430]	-0.067 0.126	[0.855 , 0.568]	0.003 0.128	[0.719 , 0.820]	0.029 0.202	[0.816 , 0.661]
goodness of fit:		μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]
GOF (outdegree)		0.251 0.296	*** [44 , 26]	0.256 0.294	*** [44 , 26]	0.283 0.320	*** [36 , 22]	0.271 0.315	*** [42 , 25]
GOF (behavior)		0.326 0.280	*** [44 , 35]	0.311 0.266	*** [44 , 36]	0.305 0.248	*** [36 , 31]	0.305 0.272	*** [42 , 33]
GOF (allocations)			[62 , 37]		[64 , 40]		[63 , 38]		[63 , 41]

$^{***}p < 0.01$, $^{**}0.01 < p < 0.05$, $^{*}0.05 < p < 0.1$, $^{\dagger}p < 0.1$

6.4.3 Finding Social Support in Adolescent Friendship and Advice Networks

Table 6.37: **Extrinsic vs. intrinsic motivations for saving in friendship and advice networks**

		friendship networks								**advice networks**							
		stv		**sev**		**cov**		**opv**		**stv**		**sev**		**cov**		**opv**	
effect	function	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p
network selection:																	
1st period	**rate**	7.728 0.789	*** [1 , 0]	7.441 0.676	*** [1 , 0]	7.645 0.684	*** [1 , 0]	6.858 0.610	*** [1 , 0]	6.276 0.473	*** [1 , 0]	6.104 0.462	*** [1 , 0]	6.540 0.532	*** [1 , 0]	5.844 0.452	*** [1 , 0]
2nd period	**rate**	7.156 0.499	*** [1 , 0]	7.459 0.556	*** [1 , 0]	7.249 0.487	*** [1 , 0]	7.051 0.506	*** [1 , 0]	11.155 2.437	*** [1 , 0]	11.516 2.613	*** [1 , 0]	7.856 0.833	*** [1 , 0]	7.593 0.754	*** [1 , 0]
density	**eval**	-2.127 0.104	*** [0 , 1]	-1.958 0.151	*** [0 , 1]	-2.068 0.111	*** [0 , 1]	-1.998 0.125	*** [0 , 1]	-1.555 0.075	*** [0 , 1]	-1.447 0.066	*** [0 , 1]	-1.565 0.065	*** [0 , 1]	-1.486 0.068	*** [0 , 1]
reciprocity	**eval**	1.057 0.120	*** [1 , 0]	1.153 0.131	*** [1 , 0]	1.075 0.110	*** [1 , 0]	1.149 0.111	*** [1 , 0]	1.315 0.091	*** [1 , 0]	1.239 0.088	*** [1 , 0]	1.266 0.088	*** [1 , 0]	1.210 0.090	*** [1 , 0]
transitivity	**eval**	1.351 0.063	*** [1 , 0]	1.384 0.067	*** [1 , 0]	1.309 0.065	*** [1 , 0]	1.357 0.067	*** [1 , 0]	1.654 0.089	*** [1 , 0]	1.599 0.093	*** [1 , 0]	1.619 0.091	*** [1 , 0]	1.561 0.101	*** [1 , 0]
cyclicality	**eval**									-0.429 0.080	*** [0 , 1]	-0.420 0.074	*** [0 , 1]	-0.452 0.078	*** [0 , 1]	-0.375 0.072	*** [0 , 1]
popularity	**eval**	-0.079 0.017	*** [0 , 1]	-0.088 0.020	*** [0 , 1]	-0.082 0.019	*** [0 , 1]	-0.089 0.017	*** [0 , 1]	-0.140 0.024	*** [0 , 1]	-0.141 0.021	*** [0 , 1]	-0.124 0.021	*** [0 , 1]	-0.137 0.022	*** [0 , 1]
same age	**eval**	-0.026 0.057	[0.131 , 0.651]	-0.098 0.070	[0.001 , 0.757]	-0.105 0.061	† [0.003 , 0.93]	-0.075 0.072	† [0.005 , 0.758]								
same gender	**eval**	0.350 0.066	*** [1 , 0]	0.355 0.064	*** [1 , 0]	0.382 0.068	*** [1 , 0]	0.312 0.054	*** [1 , 0]								
scp alter	**eval**									0.111 0.038	*** [0.994 , 0.007]	0.085 0.046	† [0.912 , 0.005]	0.099 0.038	** [0.984 , 0.004]	0.083 0.038	* [0.921 , 0.02]
scp ego	**eval**									-0.096 0.053	. [0.001 , 0.808]	-0.044 0.062	[0.005 , 0.301]	-0.048 0.059	[0.006 , 0.516]	-0.098 0.061	[0.001 , 0.859]
scp similarity	**eval**									0.149 0.149	[0.848 , 0.065]	0.344 0.123	** [0.992 , 0.001]	0.198 0.122	[0.95 , 0.022]	0.231 0.131	† [0.911 , 0.038]
rsp alter	**eval**									0.029 0.042	[0.569 , 0.099]	0.089 0.048	† [0.864 , 0.001]	0.063 0.038	[0.888 , 0.005]	0.061 0.043	[0.843 , 0.017]
rsp ego	eval									0.023 0.062	[0.221 , 0.03]	0.075 0.066	[0.457 , 0]	0.023 0.058	[0.161 , 0.017]	0.073 0.053	[0.74 , 0.006]
rsp similarity	eval									0.152 0.126	[0.96 , 0.154]	0.130 0.142	[0.763 , 0.058]	0.087 0.122	[0.857 , 0.168]	0.184 0.129	[0.921 , 0.036]
sri alter	eval									-0.026 0.051	[0.455 , 0.783]	0.033 0.040	[0.028 , 0.638]	-0.004 0.044	[0.139 , 0.123]	0.018 0.043	[0.1 , 0.356]
sri ego	**eval**									-0.026 0.041	[0.633 , 0.180]	-0.074 0.033	* [0.953 , 0.533]	-0.002 0.034	[0.445 , 0.676]	-0.061 0.034	† [0.776 , 0.167]
sri similarity	**eval**									0.326 0.120	** [0.004 , 0.998]	0.281 0.107	** [0.012 , 0.999]	0.258 0.109	* [0.020 , 0.991]	0.226 0.111	† [0.022 , 0.969]
eri alter	**eval**									-0.061 0.036	† [0.841 , 0.133]	-0.117 0.034	*** [0.997 , 0.469]	-0.105 0.030	*** [0.998 , 0.001]	-0.112 0.034	*** [0.997 , 0]
eri ego	**eval**									0.067 0.057	[0.012 , 0.676]	0.093 0.063	[0 , 0.384]	0.092 0.053	* [0 , 0.658]	0.118 0.046	* [0 , 0.960]
eri similarity	eval									0.093 0.137	[0.092 , 0.726]	0.103 0.120	[0.074 , 0.726]	0.119 0.109	[0.068 , 0.820]	0.188 0.118	[0.032 , 0.916]
sav alter	**eval**	0.017 0.017	[0.677 , 0.085]	0.026 0.015	† [0.891 , 0.092]	0.025 0.014	† [0.967 , 0.048]	0.023 0.014	† [0.963 , 0.17]								
sav ego	eval	-0.008 0.013	[0.257 , 0.837]	-0.014 0.014	[0.121 , 0.928]	-0.009 0.014	[0.15 , 0.779]	-0.003 0.013	[0.295 , 0.901]								
sav similarity	**eval**	0.531 0.239	* [0.994 , 0.008]	0.270 0.213	[0.869 , 0.168]	0.438 0.253	† [0.895 , 0.035]	0.568 0.241	* [0.965 , 0.017]								
stv alter	**eval**	0.024 0.037	[0.641 , 0.198]							0.062 0.038	† [0.946 , 0.023]						
stv ego	**eval**	-0.044 0.044	[0.011 , 0.605]							-0.107 0.049	* [0 , 0.97]						
stv similarity	**eval**	0.405 0.140	*** [0.995 , 0]							0.265 0.155	† [0.82 , 0.003]						
sev alter	eval			-0.045 0.041	[0.005 , 0.54]							-0.028 0.036	[0.011 , 0.329]				
sev ego	eval			0.007 0.034	[0.145 , 0.056]							0.005 0.035	[0.121 , 0.119]				
sev similarity	**eval**			0.230 0.138	† [0.89 , 0.009]							0.128 0.121	[0.809 , 0.086]				
cov alter	eval					-0.025 0.025	[0.101 , 0.911]							-0.035 0.023	[0.189 , 0.854]		
cov ego	**eval**					-0.019 0.047	[0.01 , 0.067]							-0.078 0.025	*** [0 , 0.968]		
cov similarity	eval					0.045 0.109	[0.417 , 0.319]							0.050 0.101	[0.906 , 0.255]		
opv alter	eval							-0.008 0.036	[0.263 , 0.545]							-0.016 0.052	[0.032 , 0.091]
opv ego	eval							-0.069 0.048	[0.004 , 0.566]							0.007 0.056	[0.061 , 0.05]
opv similarity	**eval**							0.044 0.099	[0.704 , 0.352]							0.223 0.118	† [0.869 , 0.05]
behavior change:																	
1st period	**eval**	8.393 0.862	*** [1 , 0]	8.996 1.085	*** [1 , 0]	7.810 0.848	*** [1 , 0]	7.991 0.828	*** [1 , 0]	7.248 0.976	*** [1 , 0]	7.348 0.981	*** [1 , 0]	7.504 0.966	*** [1 , 0]	7.446 0.961	*** [1 , 0]
2nd period	**eval**	8.696 1.704	*** [1 , 0]	13.839 2.727	*** [1 , 0]	15.960 3.302	*** [1 , 0]	15.139 3.161	*** [1 , 0]	22.058 6.034	*** [1 , 0]	8.028 1.393	*** [1 , 0]	8.399 1.417	*** [1 , 0]	22.847 6.128	*** [1 , 0]
linear	**eval**	-0.073 0.019	*** [0 , 1]	-0.084 0.019	*** [0 , 1]	-0.081 0.019	*** [0 , 1]	-0.078 0.017	*** [0 , 1]	-0.068 0.014	*** [0 , 1]	-0.065 0.014	*** [0 , 1]	-0.062 0.014	*** [0 , 1]	-0.072 0.013	*** [0 , 1]
avg similarity	**eval**	1.067 0.442	* [0.985 , 0.002]	1.132 0.450	* [0.993 , 0.002]	1.300 0.375	*** [0.999 , 0.001]	0.988 0.360	** [0.993 , 0.003]	1.627 0.477	*** [1 , 0.002]	1.628 0.426	*** [1 , 0.001]	1.710 0.453	*** [1 , 0]	1.475 0.448	*** [1 , 0.005]
effect from stv	eval	-0.021 0.025	[0.074 , 0.686]							0.004 0.020	[0.238 , 0.681]						
effect from sev	eval			-0.017 0.016	[0.114 , 0.933]							-0.013 0.013	[0.382 , 0.966]				
effect from cov	eval					-0.024 0.019	[0.11 , 0.958]							-0.009 0.015	[0.489 , 0.851]		
effect from opv	**eval**							-0.033 0.019	† [0.099 , 0.988]							-0.010 0.017	[0.305 , 0.885]
goodness of fit:		μ_p σ_p [converge / fit]	χ^2 test	μ_p σ_p [converge / fit]	χ^2 test	μ_p σ_p [converge / fit]	χ^2 test	μ_p σ_p [converge / fit]	χ^2 test	μ_p σ_p [converge / fit]	χ^2 test	μ_p σ_p [converge / fit]	χ^2 test	μ_p σ_p [converge / fit]	χ^2 test	μ_p σ_p [converge / fit]	χ^2 test
GOF (outdegree)		0.331 0.290	*** [36 , 28]	0.315 0.290	*** [39 , 29]	0.321 0.285	*** [37 , 27]	0.291 0.297	*** [38 , 27]	0.336 0.268	*** [38 , 33]	0.328 0.280	*** [38 , 32]	0.313 0.268	*** [40 , 33]	0.291 0.224	*** [39 , 34]
GOF (behavior)		0.311 0.301	*** [36 , 25]	0.281 0.284	*** [39 , 27]	0.286 0.284	*** [37 , 26]	0.294 0.297	*** [38 , 25]	0.266 0.278	*** [38 , 26]	0.280 0.288	*** [38 , 26]	0.278 0.269	*** [40 , 29]	0.265 0.267	*** [39 , 27]

$^{***}p < 0.01$, $^{**}0.01 < p < 0.05$, $^{*}0.05 < p < 0.1$, $^{\dagger}p < 0.1$

Table 6.38: **Extrinsic vs. intrinsic motivations for spending in friendship and advice networks**

		friendship networks								advice networks							
		cov		opv		sev		stv		cov		opv		sev		stv	
effect	function	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p
network selection:																	
1st period	**rate**	7.794	***	7.629	***	8.034	***	7.540	***	6.569	***	6.000	***	6.447	***	6.518	***
	se	0.773	[1 , 0]	0.735	[1 , 0]	0.715	[1 , 0]	0.743	[1 , 0]	0.498	[1 , 0]	0.435	[1 , 0]	0.480	[1 , 0]	0.487	[1 , 0]
2nd period	**rate**	7.476	***	7.224	***	7.582	***	7.032	***	8.391	***	7.721	***	8.295	***	8.473	***
		0.795	[1 , 0]	0.683	[1 , 0]	0.704	[1 , 0]	0.505	[1 , 0]	1.016	[1 , 0]	0.840	[1 , 0]	0.821	[1 , 0]	1.009	[1 , 0]
density	**eval**	-1.836	***	-1.828	***	-1.870	***	-1.915	***	-1.593	***	-1.525	***	-1.507	***	-1.579	***
		0.156	[0 , 1]	0.151	[0 , 1]	0.170	[0 , 1]	0.134	[0 , 1]	0.079	[0 , 1]	0.084	[0 , 1]	0.074	[0 , 1]	0.087	[0 , 1]
reciprocity	**eval**	1.244	***	1.237	***	1.218	***	1.189	***	1.282	***	1.284	***	1.282	***	1.265	***
		0.108	[1 , 0]	0.106	[1 , 0]	0.116	[1 , 0]	0.108	[1 , 0]	0.099	[1 , 0]	0.095	[1 , 0]	0.089	[1 , 0]	0.102	[1 , 0]
transitivity	**eval**	1.395	***	1.383	***	1.402	***	1.383	***	1.724	***	1.724	***	1.669	***	1.700	***
		0.066	[1 , 0]	0.063	[1 , 0]	0.067	[1 , 0]	0.070	[1 , 0]	0.087	[1 , 0]	0.096	[1 , 0]	0.082	[1 , 0]	0.087	[1 , 0]
cyclicality	**eval**									-0.432	***	-0.463	***	-0.436	***	-0.429	***
										0.084	[0 , 1]	0.071	[0 , 1]	0.075	[0 , 1]	0.086	[0 , 1]
popularity	**eval**	-0.146	***	-0.132	***	-0.139	***	-0.140	***	-0.127	***	-0.138	***	-0.129	***	-0.128	***
		0.022	[0 , 1]	0.021	[0 , 1]	0.025	[0 , 1]	0.025	[0 , 1]	0.025	[0 , 1]	0.025	[0 , 1]	0.022	[0 , 1]	0.025	[0 , 1]
same age	**eval**	0.029		0.011		0.020		0.065									
		0.055	[0.14 , 0.142]	0.050	[0.144 , 0.264]	0.063	[0.097 , 0.116]	0.049	[0.909 , 0.261]								
same gender	**eval**	0.317	***	0.331	***	0.362	***	0.362	***								
		0.059	[1 , 0]	0.052	[1 , 0]	0.064	[1 , 0]	0.062	[1 , 0]								
scp alter	**eval**									0.084	*	0.104	**	0.102	*	0.104	*
										0.040	[0.985 , 0.003]	0.039	[0.983 , 0.005]	0.042	[0.984 , 0.001]	0.041	[0.988 , 0.002]
scp ego	eval									-0.055		-0.063		-0.038		-0.078	
										0.059	[0.011 , 0.335]	0.060	[0.007 , 0.432]	0.061	[0.013 , 0.188]	0.051	[0.008 , 0.617]
scp similarity	eval									-0.003		-0.095		0.148		-0.017	
										0.135	[0.354 , 0.283]	0.142	[0.173 , 0.493]	0.145	[0.643 , 0.054]	0.142	[0.285 , 0.321]
rsp alter	eval									0.031		0.028		0.020		0.020	
										0.034	[0.623 , 0.082]	0.048	[0.326 , 0.064]	0.038	[0.328 , 0.109]	0.034	[0.386 , 0.093]
rsp ego	**eval**									0.079		0.139	***	0.064		0.071	
										0.068	[0.297 , 0.002]	0.048	[0.928 , 0]	0.063	[0.321 , 0.003]	0.068	[0.378 , 0.003]
rsp similarity	eval									0.185		0.116		0.139		0.143	
										0.143	[0.893 , 0.028]	0.129	[0.799 , 0.082]	0.139	[0.8 , 0.037]	0.129	[0.905 , 0.065]
sri alter	eval									-0.047		0.007		-0.026		-0.032	
										0.045	[0.547 , 0.045]	0.050	[0.165 , 0.221]	0.045	[0.312 , 0.180]	0.046	[0.353 , 0.080]
sri ego	**eval**									-0.037		-0.024		-0.050		-0.019	
										0.040	[0.742 , 0.274]	0.040	[0.357 , 0.461]	0.043	[0.720 , 0.223]	0.038	[0.330 , 0.244]
sri similarity	eval									0.073		0.151		0.091		0.101	
										0.116	[0.196 , 0.703]	0.137	[0.058 , 0.743]	0.119	[0.131 , 0.833]	0.108	[0.177 , 0.859]
eri alter	**eval**									-0.078	†	-0.066		-0.085	†	-0.073	†
										0.037	[0.943 , 0]	0.043	[0.835 , 0.006]	0.047	[0.892 , 0]	0.042	[0.854 , 0.002]
eri ego	**eval**									0.177	**	0.136	*	0.167	†	0.134	*
										0.063	[0 , 0.957]	0.056	[0 , 0.909]	0.075	[0 , 0.858]	0.053	[0 , 0.924]
eri similarity	**eval**									0.172		0.288	†	0.197		0.107	
										0.131	[0.065 , 0.930]	0.153	[0.006 , 0.955]	0.127	[0.076 , 0.945]	0.115	[0.144 , 0.917]
con alter	eval	0.002		-0.007		0.015		-0.000									
		0.019	[0.519 , 0.286]	0.019	[0.398 , 0.294]	0.018	[0.721 , 0.167]	0.024	[0.612 , 0.324]								
con ego	eval	-0.008		0.003		-0.006		0.015									
		0.014	[0.738 , 0.602]	0.014	[0.873 , 0.38]	0.015	[0.847 , 0.423]	0.017	[0.978 , 0.242]								
con similarity	**eval**	0.096		0.143		0.285		0.509	†								
		0.256	[0.824 , 0.191]	0.255	[0.898 , 0.12]	0.265	[0.956 , 0.117]	0.300	[0.983 , 0.04]								
cov alter	eval	-0.034								-0.017							
		0.033	[0.035 , 0.827]							0.023	[0.302 , 0.447]						
cov ego	eval	0.043								-0.073							
		0.032	[0.942 , 0.008]							0.045	[0 , 0.651]						
cov similarity	**eval**	0.177	†							0.256	*						
		0.106	[0.976 , 0.106]							0.127	[0.923 , 0.005]						
opv alter	eval			0.006								-0.024					
				0.039	[0.508 , 0.439]							0.053	[0.015 , 0.193]				
opv ego	**eval**			-0.059								-0.107	†				
				0.053	[0.006 , 0.451]							0.062	[0 , 0.866]				
opv similarity	eval			0.029								0.110					
				0.097	[0.725 , 0.562]							0.114	[0.803 , 0.109]				
sev alter	eval					-0.048								-0.037			
						0.034	[0.008 , 0.874]							0.033	[0.003 , 0.363]		
sev ego	eval					0.036								-0.007			
						0.025	[0.959 , 0.168]							0.040	[0.029 , 0.107]		
sev similarity	eval					0.154								0.148			
						0.134	[0.822 , 0.057]							0.107	[0.898 , 0.051]		
stv alter	eval							-0.012								0.045	
								0.043	[0.425 , 0.624]							0.035	[0.747 , 0.11]
stv ego	eval							-0.054								-0.029	
								0.040	[0.021 , 0.768]							0.031	[0.149 , 0.675]
stv similarity	**eval**							0.198								0.288	**
								0.122	[0.98 , 0.024]							0.104	[0.999 , 0.005]
behavior change:																	
1st period	**eval**	7.789	***	7.293	***	8.080	***	7.355	***	8.523	***	8.424	***	9.074	***	8.104	***
		1.204	[1 , 0]	1.097	[1 , 0]	1.260	[1 , 0]	1.159	[1 , 0]	1.237	[1 , 0]	1.137	[1 , 0]	1.259	[1 , 0]	1.186	[1 , 0]
2nd period	**eval**	16.184	***	10.599	***	8.344	***	12.436	***	9.482	***	7.921	***	16.382	***	8.413	***
		3.384	[1 , 0]	1.751	[1 , 0]	1.299	[1 , 0]	2.812	[1 , 0]	1.666	[1 , 0]	1.083	[1 , 0]	2.839	[1 , 0]	1.338	[1 , 0]
linear	**eval**	-0.051	***	-0.053	***	-0.067	***	-0.059	***	-0.066	***	-0.060	***	-0.063	***	-0.068	***
		0.016	[0.001 , 0.992]	0.018	[0.001 , 0.971]	0.016	[0 , 0.998]	0.017	[0 , 0.994]	0.015	[0 , 1]	0.015	[0 , 0.999]	0.013	[0 , 1]	0.016	[0 , 1]
avg similarity	**eval**	0.862	*	1.218	***	0.830	*	1.272	***	1.130	*	1.797	***	1.550	***	1.143	*
		0.373	[0.841 , 0.036]	0.375	[0.983 , 0.013]	0.395	[0.91 , 0.048]	0.368	[0.987 , 0.003]	0.502	[0.982 , 0.015]	0.605	[0.998 , 0]	0.521	[0.998 , 0]	0.542	[0.981 , 0.01]
effect from cov	**eval**	0.032	†							0.013							
		0.018	[0.969 , 0.042]							0.015	[0.834 , 0.128]						
effect from opv	eval			0.047								0.006					
				0.031	[0.683 , 0.004]							0.033	[0.137 , 0.042]				
effect from sev	eval					0.016								0.018			
						0.018	[0.869 , 0.162]							0.013	[0.962 , 0.073]		
effect from stv	eval							0.022								-0.020	
								0.023	[0.769 , 0.085]							0.018	[0.209 , 0.706]
goodness of fit:		μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]
GOF (outdegree)		0.331	***	0.315	***	0.321	***	0.291	***	0.336	***	0.328	***	0.313	***	0.291	***
		0.290	[36 , 28]	0.290	[39 , 29]	0.285	[37 , 27]	0.297	[38 , 27]	0.268	[38 , 33]	0.280	[38 , 32]	0.268	[40 , 33]	0.224	[39 , 34]
GOF (behavior)		0.311	***	0.281	***	0.286	***	0.294	***	0.266	***	0.280	***	0.278	***	0.265	***
		0.301	[36 , 25]	0.284	[39 , 27]	0.284	[37 , 26]	0.297	[38 , 25]	0.278	[38 , 26]	0.288	[38 , 26]	0.269	[40 , 29]	0.267	[39 , 27]

$^{***}p < 0.01$, $^{**}0.01 < p < 0.05$, $^{*}0.05 < p < 0.1$, $^{\dagger}p < 0.1$

Table 6.39: **Extrinsic vs. intrinsic motivations for donations in friendship and advice networks**

		friendship networks								advice networks							
		opv		cov		stv		sev		opv		cov		stv		sev	
effect	function	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p
network selection:																	
1st period	**rate**	7.834 0.812	*** [1 , 0]	8.212 0.836	*** [1 , 0]	8.311 0.804	*** [1 , 0]	8.043 0.804	*** [1 , 0]	6.936 0.504	*** [1 , 0]	6.364 0.486	*** [1 , 0]	6.180 0.347	*** [1 , 0]	6.629 0.607	*** [1 , 0]
2nd period	**rate**	6.821 0.438	*** [1 , 0]	7.200 0.429	*** [1 , 0]	7.513 0.484	*** [1 , 0]	7.148 0.505	*** [1 , 0]	7.549 0.746	*** [1 , 0]	8.040 0.842	*** [1 , 0]	7.855 0.787	*** [1 , 0]	8.006 0.849	*** [1 , 0]
density	**eval**	-2.005 0.093	*** [0 , 1]	-2.014 0.091	*** [0 , 1]	-2.104 0.091	*** [0 , 1]	-2.010 0.113	*** [0 , 1]	-1.466 0.064	*** [0 , 1]	-1.486 0.066	*** [0 , 1]	-1.365 0.067	*** [0 , 1]	-1.420 0.075	*** [0 , 1]
reciprocity	**eval**	1.113 0.091	*** [1 , 0]	1.146 0.102	*** [1 , 0]	1.011 0.075	*** [1 , 0]	1.035 0.092	*** [1 , 0]	1.252 0.084	*** [1 , 0]	1.187 0.087	*** [1 , 0]	1.163 0.086	*** [1 , 0]	1.185 0.095	*** [1 , 0]
transitivity	**eval**	1.326 0.067	*** [1 , 0]	1.322 0.062	*** [1 , 0]	1.313 0.069	*** [1 , 0]	1.268 0.063	*** [1 , 0]	1.555 0.087	*** [1 , 0]	1.624 0.097	*** [1 , 0]	1.620 0.084	*** [1 , 0]	1.631 0.074	*** [1 , 0]
cyclicality	**eval**									-0.481 0.073	*** [0 , 1]	-0.398 0.080	*** [0 , 1]	-0.411 0.082	*** [0 , 1]	-0.426 0.084	*** [0 , 1]
popularity	**eval**	-0.099 0.016	*** [0 , 1]	-0.091 0.017	*** [0 , 1]	-0.092 0.016	*** [0 , 1]	-0.077 0.017	*** [0 , 1]	-0.121 0.024	*** [0 , 1]	-0.134 0.022	*** [0 , 1]	-0.150 0.024	*** [0 , 1]	-0.140 0.022	*** [0 , 1]
same age	eval	-0.005 0.044	[0.416 , 0.521]	-0.012 0.041	[0.479 , 0.707]	0.025 0.045	[0.731 , 0.289]	0.028 0.046	[0.654 , 0.377]								
same gender	**eval**	0.326 0.061	*** [1 , 0]	0.337 0.061	*** [0.998 , 0]	0.371 0.053	*** [1 , 0]	0.404 0.083	*** [1 , 0]								
scp alter	**eval**									0.078 0.034	* [0.91 , 0.025]	0.047 0.043	[0.667 , 0.043]	0.049 0.046	[0.717 , 0.042]	0.077 0.050	[0.693 , 0.014]
scp ego	**eval**									-0.116 0.045	* [0 , 0.914]	-0.096 0.044	* [0.003 , 0.993]	-0.121 0.041	*** [0.001 , 0.996]	-0.137 0.044	*** [0 , 0.999]
scp similarity	eval									-0.080 0.125	[0.213 , 0.38]	0.050 0.119	[0.829 , 0.188]	-0.030 0.119	[0.653 , 0.336]	-0.051 0.121	[0.654 , 0.5]
rsp alter	**eval**									0.025 0.040	[0.584 , 0.037]	0.037 0.049	[0.442 , 0.031]	0.044 0.044	[0.429 , 0.04]	0.093 0.039	* [0.941 , 0.012]
rsp ego	eval									0.058 0.042	[0.743 , 0.022]	0.077 0.054	[0.741 , 0.009]	0.051 0.056	[0.656 , 0.02]	0.036 0.073	[0.31 , 0.009]
rsp similarity	**eval**									0.307 0.138	* [0.952 , 0.005]	0.254 0.151	† [0.888 , 0.01]	0.147 0.151	[0.712 , 0.056]	0.377 0.173	* [0.945 , 0.001]
sri alter	eval									-0.004 0.050	[0.201 , 0.119]	-0.012 0.050	[0.174 , 0.071]	-0.018 0.036	[0.322 , 0.111]	-0.023 0.047	[0.255 , 0.065]
sri ego	eval									0.011 0.046	[0.171 , 0.652]	0.001 0.038	[0.416 , 0.620]	-0.020 0.041	[0.350 , 0.242]	0.002 0.043	[0.233 , 0.443]
sri similarity	eval									0.112 0.115	[0.260 , 0.897]	0.098 0.109	[0.273 , 0.943]	0.078 0.097	[0.173 , 0.809]	0.105 0.110	[0.302 , 0.916]
eri alter	**eval**									-0.070 0.035	† [0.921 , 0.019]	-0.080 0.033	* [0.981 , 0.008]	-0.093 0.032	** [0.980 , 0]	-0.084 0.034	* [0.952 , 0.005]
eri ego	**eval**									0.114 0.040	** [0.007 , 0.955]	0.135 0.052	** [0 , 0.883]	0.103 0.044	* [0 , 0.853]	0.139 0.062	* [0 , 0.759]
eri similarity	**eval**									0.293 0.136	† [0.006 , 0.940]	0.176 0.125	[0.039 , 0.806]	0.130 0.103	[0.055 , 0.828]	0.214 0.123	† [0.019 , 0.895]
giv alter	eval	0.013 0.032	[0.666 , 0.378]	0.020 0.032	[0.678 , 0.371]	-0.003 0.039	[0.506 , 0.424]	0.037 0.034	[0.828 , 0.274]								
giv ego	eval	0.039 0.038	[0.896 , 0.043]	0.045 0.047	[0.811 , 0.021]	0.050 0.035	[0.946 , 0.036]	0.061 0.041	[0.961 , 0.028]								
giv similarity	**eval**	0.498 0.302	† [0.941 , 0.067]	0.523 0.307	† [0.95 , 0.072]	0.426 0.281	† [0.91 , 0.154]	0.599 0.311	† [0.902 , 0.087]								
opv alter	eval	0.004 0.041	[0.257 , 0.122]							-0.060 0.036	[0.007 , 0.842]						
opv ego	eval	-0.030 0.050	[0.01 , 0.189]							-0.039 0.035	[0.028 , 0.701]						
opv similarity	**eval**	-0.008 0.107	[0.264 , 0.288]							0.186 0.110	† [0.923 , 0.03]						
cov alter	eval			-0.022 0.028	[0.116 , 0.712]							-0.023 0.023	[0.159 , 0.819]				
cov ego	**eval**			0.045 0.031	[0.855 , 0.014]							-0.080 0.046	† [0 , 0.609]				
cov similarity	eval			0.065 0.103	[0.493 , 0.515]							0.169 0.136	[0.647 , 0.016]				
stv alter	eval					-0.031 0.037	[0.054 , 0.709]							0.052 0.037	[0.913 , 0.026]		
stv ego	**eval**					-0.058 0.044	[0.001 , 0.657]							-0.088 0.032	** [0.002 , 0.999]		
stv similarity	**eval**					0.272 0.128	* [0.945 , 0.001]							0.110 0.128	[0.594 , 0.057]		
sev alter	eval							-0.041 0.033	[0.011 , 0.701]							-0.036 0.027	[0.081 , 0.8]
sev ego	**eval**							0.043 0.026	† [0.92 , 0.064]							-0.018 0.034	[0.048 , 0.46]
sev similarity	**eval**							0.340 0.122	** [0.99 , 0.001]							0.246 0.105	* [0.992 , 0.057]
behavior change:																	
1st period	**eval**	1.698 0.208	*** [1 , 0]	1.818 0.217	*** [1 , 0]	5.851 2.064	*** [1 , 0]	1.890 0.239	*** [1 , 0]	5.995 2.208	** [1 , 0]	1.905 0.254	*** [1 , 0]	1.950 0.242	*** [1 , 0]	2.064 0.267	*** [1 , 0]
2nd period	**eval**	5.291 1.670	*** [1 , 0]	2.594 0.496	*** [1 , 0]	2.346 0.488	*** [1 , 0]	2.444 0.475	*** [1 , 0]	2.526 0.422	*** [1 , 0]	2.623 0.532	*** [1 , 0]	6.661 2.263	*** [1 , 0]	2.676 0.494	*** [1 , 0]
linear	**eval**	-0.354 0.047	*** [0 , 1]	-0.334 0.045	*** [0 , 1]	-0.344 0.044	*** [0 , 1]	-0.347 0.045	*** [0 , 1]	-0.303 0.050	*** [0 , 1]	-0.253 0.045	*** [0 , 1]	-0.269 0.044	*** [0 , 1]	-0.256 0.042	*** [0 , 1]
avg similarity	eval	-0.281 0.717	[0.483 , 0.799]	-0.901 0.652	[0.152 , 0.979]	-0.192 0.649	[0.583 , 0.831]	-0.209 0.654	[0.605 , 0.894]	-0.297 0.939	[0.489 , 0.866]	-0.139 0.897	[0.451 , 0.883]	0.520 0.847	[0.902 , 0.53]	-0.087 0.964	[0.639 , 0.705]
effect from opv	**eval**	0.054 0.043	[0.925 , 0.123]							0.077 0.040	† [0.941 , 0.069]						
effect from cov	eval			-0.004 0.034	[0.586 , 0.603]							0.016 0.036	[0.798 , 0.538]				
effect from stv	eval					0.065 0.043	[0.99 , 0.037]							0.053 0.041	[0.99 , 0.129]		
effect from sev	eval							-0.014 0.035	[0.632 , 0.623]							-0.016 0.032	[0.407 , 0.728]
goodness of fit:		μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]
GOF (outdegree)		0.331 0.290	*** [36 , 28]	0.315 0.290	*** [39 , 29]	0.321 0.285	*** [37 , 27]	0.291 0.297	*** [38 , 27]	0.336 0.268	*** [38 , 33]	0.328 0.280	*** [38 , 32]	0.313 0.268	*** [40 , 33]	0.291 0.224	*** [39 , 34]
GOF (behavior)		0.311 0.301	*** [36 , 25]	0.281 0.284	*** [39 , 27]	0.286 0.284	*** [37 , 26]	0.294 0.297	*** [38 , 25]	0.266 0.278	*** [38 , 26]	0.280 0.288	*** [38 , 26]	0.278 0.269	*** [40 , 29]	0.265 0.267	*** [39 , 27]

$^{***}p < 0.01$, $^{**}0.01 < p < 0.05$, $^{*}0.05 < p < 0.1$, $^{\dagger}p < 0.1$

Table 6.40: **Social norms for saving in friendship and advice networks**

		friendship networks								advice networks							
		stv		sev		cov		opv		stv		sev		cov		opv	
effect	function	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p
network selection:																	
1st period	**rate**	7.531 0.721	*** [1 , 0]	7.218 0.684	*** [1 , 0]	7.335 0.767	*** [1 , 0]	7.369 0.731	*** [1 , 0]	6.682 0.602	*** [1 , 0]	6.632 0.547	*** [1 , 0]	5.947 0.508	*** [1 , 0]	6.462 0.502	*** [1 , 0]
2nd period	**rate**	7.061 0.440	*** [1 , 0]	7.153 0.434	*** [1 , 0]	7.010 0.469	*** [1 , 0]	7.154 0.442	*** [1 , 0]	7.600 0.798	*** [1 , 0]	8.013 0.783	*** [1 , 0]	7.687 0.806	*** [1 , 0]	7.660 0.716	*** [1 , 0]
density	**eval**	-2.197 0.113	*** [0 , 1]	-2.229 0.128	*** [0 , 1]	-2.204 0.120	*** [0 , 1]	-2.232 0.129	*** [0 , 1]	-1.594 0.076	*** [0 , 1]	-1.517 0.067	*** [0 , 1]	-1.576 0.077	*** [0 , 1]	-1.583 0.082	*** [0 , 1]
reciprocity	**eval**	1.147 0.127	*** [1 , 0]	1.194 0.145	*** [1 , 0]	1.148 0.125	*** [1 , 0]	1.171 0.139	*** [1 , 0]	1.287 0.098	*** [1 , 0]	1.249 0.087	*** [1 , 0]	1.259 0.097	*** [1 , 0]	1.268 0.086	*** [1 , 0]
transitivity	**eval**	1.361 0.068	*** [1 , 0]	1.338 0.077	*** [1 , 0]	1.290 0.075	*** [1 , 0]	1.349 0.077	*** [1 , 0]	1.649 0.107	*** [1 , 0]	1.588 0.092	*** [1 , 0]	1.653 0.096	*** [1 , 0]	1.592 0.090	*** [1 , 0]
cyclicality	**eval**									-0.410 0.101	*** [0 , 1]	-0.443 0.073	*** [0 , 1]	-0.405 0.095	*** [0 , 1]	-0.397 0.067	*** [0 , 1]
popularity	**eval**	-0.094 0.020	*** [0 , 1]	-0.084 0.020	*** [0 , 1]	-0.080 0.021	*** [0 , 1]	-0.077 0.018	*** [0 , 1]	-0.131 0.024	*** [0 , 1]	-0.136 0.018	*** [0 , 1]	-0.132 0.020	*** [0 , 1]	-0.133 0.023	*** [0 , 1]
same age	eval	-0.015 0.061	[0.138 , 0.542]	-0.061 0.067	[0.064 , 0.767]	-0.061 0.054	[0.119 , 0.87]	-0.053 0.072	[0.044 , 0.684]								
same gender	**eval**	0.397 0.065	*** [1 , 0]	0.439 0.067	*** [1 , 0]	0.424 0.076	*** [1 , 0]	0.408 0.071	*** [1 , 0]								
scp alter	eval									0.046		0.067		0.049		0.051	
scp ego	**eval**									0.052 -0.109	[0.705 , 0.114] †	0.045 -0.039	[0.632 , 0.021]	0.049 -0.058	[0.569 , 0.065]	0.037 -0.030	[0.545 , 0.072]
scp similarity	eval									0.064 0.075	[0.005 , 0.887]	0.062 0.163	[0.009 , 0.483]	0.071 0.139	[0.012 , 0.585]	0.058 0.069	[0.045 , 0.296]
rsp alter	eval									0.181 0.047	[0.594 , 0.137]	0.129 0.057	[0.872 , 0.061]	0.163 0.051	[0.836 , 0.051]	0.145 0.041	[0.501 , 0.226]
rsp ego	eval									0.040 -0.022	[0.889 , 0.015]	0.046 0.016	[0.813 , 0.009]	0.040 0.049	[0.857 , 0.017]	0.042 0.013	[0.817 , 0.042]
rsp similarity	eval									0.073 0.185	[0.163 , 0.308]	0.063 0.183	[0.307 , 0.066]	0.067 0.138	[0.589 , 0.103]	0.056 0.115	[0.511 , 0.149]
sri alter	eval									0.152 0.017	[0.924 , 0.067]	0.149 0.016	[0.838 , 0.027]	0.141 0.012	[0.873 , 0.122]	0.136 0.005	[0.854 , 0.204]
sri ego	**eval**									0.046 -0.064	[0.275 , 0.097]	0.054 -0.077	[0.253 , 0.056] †	0.049 -0.016	[0.158 , 0.049]	0.052 -0.065	[0.156 , 0.092] †
sri similarity	**eval**									0.045 0.271	[0.031 , 0.574] *	0.041 0.388	[0.06 , 0.805] ***	0.044 0.402	[0.284 , 0.349] ***	0.038 0.360	[0.147 , 0.788] **
eri alter	**eval**									0.120 -0.099	[0.999 , 0.009] ***	0.133 -0.090	[1 , 0.006] *	0.135 -0.105	[1 , 0.001] ***	0.134 -0.076	[0.999 , 0.003] *
eri ego	**eval**									0.035 0.090	[0.015 , 0.985]	0.037 0.138	[0.009 , 0.94] *	0.034 0.065	[0.005 , 0.994]	0.038 0.096	[0.019 , 0.903] †
eri similarity	eval									0.063 0.140	[0.593 , 0]	0.066 0.197	[0.951 , 0]	0.060 0.155	[0.438 , 0.001]	0.053 0.084	[0.948 , 0.004]
sav alter	eval	0.020 0.019	[0.744 , 0.072]	0.017 0.017	[0.727 , 0.202]	0.022 0.017	[0.825 , 0.113]	0.008 0.017	[0.68 , 0.353]	0.140	[0.786 , 0.045]	0.158	[0.794 , 0.023]	0.126	[0.869 , 0.027]	0.136	[0.642 , 0.145]
sav ego	eval	-0.006 0.014	[0.193 , 0.847]	-0.004 0.014	[0.163 , 0.828]	0.003 0.017	[0.194 , 0.454]	-0.008 0.015	[0.169 , 0.92]								
sav similarity	**eval**	0.404 0.234	† [0.975 , 0.08]	0.337 0.243	[0.955 , 0.151]	0.391 0.269	[0.962 , 0.091]	0.366 0.263	[0.966 , 0.103]								
stv alter	eval	0.020 0.036	[0.608 , 0.312]							0.027 0.044	[0.584 , 0.097]						
stv ego	eval	-0.071 0.049	[0.001 , 0.738]							-0.046 0.037	[0.021 , 0.629]						
stv similarity	**eval**	0.370 0.152	* [0.985 , 0]							0.452 0.125	*** [0.999 , 0]						
sev alter	eval			-0.054 0.042	[0.006 , 0.789]							-0.048 0.035	[0.005 , 0.627]				
sev ego	eval			-0.016 0.039	[0.051 , 0.309]							-0.007 0.039	[0.051 , 0.123]				
sev similarity	eval			0.185 0.154	[0.711 , 0.03]							0.124 0.129	[0.746 , 0.079]				
cov alter	eval					-0.030 0.035	[0.038 , 0.749]							0.009 0.028	[0.473 , 0.421]		
cov ego	**eval**					-0.045 0.050	[0.005 , 0.311]							-0.095 0.032	*** [0.001 , 0.992]		
cov similarity	**eval**					0.055 0.162	[0.319 , 0.135]							0.206 0.122	† [0.986 , 0.022]		
opv alter	eval							-0.007 0.041	[0.207 , 0.524]							-0.053 0.053	[0.001 , 0.243]
opv ego	**eval**							-0.100 0.041	* [0.009 , 0.859]							0.047 0.034	[0.36 , 0.206]
opv similarity	**eval**							0.039 0.105	[0.705 , 0.393]							0.282 0.104	** [0.971 , 0.007]
sat alter	**eval**	-0.027 0.020	[0.037 , 0.278]	-0.013 0.024	[0.081 , 0.236]	-0.013 0.019	[0.125 , 0.354]	-0.012 0.023	[0.101 , 0.294]	0.050 0.021	* [0.815 , 0.009]	0.051 0.016	*** [0.934 , 0.003]	0.025 0.023	[0.566 , 0.063]	0.045 0.018	* [0.831 , 0.003]
sat ego	eval	0.000 0.040	[0.28 , 0.486]	-0.015 0.047	[0.132 , 0.578]	-0.020 0.041	[0.179 , 0.692]	0.014 0.040	[0.573 , 0.418]	-0.001 0.037	[0.151 , 0.152]	-0.020 0.029	[0.04 , 0.289]	-0.034 0.029	[0.045 , 0.797]	0.000 0.025	[0.138 , 0.498]
sat similarity	**eval**	0.229 0.154	[0.842 , 0.026]	0.290 0.146	* [0.919 , 0.037]	0.256 0.140	† [0.898 , 0.044]	0.198 0.145	[0.893 , 0.093]	0.043 0.169	[0.466 , 0.158]	-0.048 0.121	[0.483 , 0.279]	0.164 0.157	[0.851 , 0.05]	-0.049 0.126	[0.569 , 0.203]
I(same gender*ego sat)	**eval**	0.049 0.044	[0.631 , 0.023]	0.073 0.047	[0.741 , 0.007]	0.071 0.043	† [0.805 , 0.01]	0.041 0.045	[0.587 , 0.074]								
I(same age*ego sat)	eval	0.013 0.031	[0.764 , 0.377]	0.043 0.037	[0.856 , 0.066]	0.043 0.033	[0.891 , 0.121]	0.026 0.033	[0.789 , 0.321]								
I(sav sim*ego sat)	eval	-0.107 0.157	[0.306 , 0.688]	-0.018 0.146	[0.517 , 0.549]	-0.096 0.158	[0.261 , 0.753]	-0.082 0.150	[0.309 , 0.694]								
I(stv sim*ego sat)	eval	-0.017 0.080	[0.2 , 0.591]							-0.063 0.092	[0.171 , 0.392]						
I(sev sim*ego sat)	eval			-0.027 0.074	[0.273 , 0.654]							0.040 0.061	[0.707 , 0.187]				
I(cov sim*ego sat)	**eval**					-0.068 0.085	[0.087 , 0.508]							0.195 0.078	* [0.882 , 0.005]		
I(opv sim*ego sat)	eval							-0.050 0.069	[0.629 , 0.334]							-0.005 0.066	[0.35 , 0.491]
I(scp sim*ego sat)	**eval**									0.100 0.084	[0.907 , 0.211]	0.082 0.072	[0.866 , 0.243]	0.181 0.078	* [0.973 , 0.027]	0.106 0.074	[0.966 , 0.167]
I(rsp sim*ego sat)	eval									-0.039 0.079	[0.43 , 0.85]	0.026 0.066	[0.501 , 0.691]	-0.006 0.077	[0.628 , 0.751]	0.051 0.066	[0.693 , 0.623]
I(sri sim*ego sat)	eval									0.042 0.072	[0.582 , 0.217]	0.047 0.087	[0.562 , 0.261]	0.041 0.066	[0.7 , 0.194]	0.022 0.085	[0.429 , 0.329]
I(eri sim*ego sat)	eval									0.081 0.072	[0.824 , 0.173]	0.071 0.073	[0.817 , 0.347]	0.060 0.066	[0.824 , 0.304]	0.069 0.077	[0.833 , 0.154]
behavior change:																	
1st period	**rate**	8.401 0.890	*** [1 , 0]	8.384 0.890	*** [1 , 0]	8.737 0.954	*** [1 , 0]	8.378 0.916	*** [1 , 0]	9.040 1.256	*** [1 , 0]	8.073 0.999	*** [1 , 0]	7.351 1.017	*** [1 , 0]	7.623 0.956	*** [1 , 0]
2nd period	**rate**	9.086 1.809	*** [1 , 0]	9.963 2.122	*** [1 , 0]	10.133 2.193	*** [1 , 0]	11.217 1.790	*** [1 , 0]	19.190 5.138	*** [1 , 0]	18.718 4.454	*** [1 , 0]	19.200 5.043	*** [1 , 0]	10.501 1.667	*** [1 , 0]
linear	**eval**	-0.063 0.015	*** [0 , 1]	-0.067 0.017	*** [0 , 1]	-0.068 0.017	*** [0 , 1]	-0.067 0.016	*** [0 , 1]	-0.075 0.014	*** [0 , 1]	-0.064 0.013	*** [0 , 1]	-0.076 0.014	*** [0 , 1]	-0.074 0.014	*** [0 , 1]
average similarity	**eval**	1.150 0.385	*** [0.993 , 0.001]	0.896 0.374	* [0.989 , 0.01]	0.946 0.371	* [0.986 , 0.009]	0.976 0.372	** [0.988 , 0.002]	1.080 0.492	* [0.988 , 0.032]	1.390 0.423	*** [0.999 , 0.002]	1.227 0.473	** [0.999 , 0.016]	1.414 0.439	*** [0.998 , 0.003]
goodness of fit:		μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]
GOF (outdegree)		0.331 0.313	*** [34 , 29]	0.363 0.314	*** [32 , 28]	0.362 0.311	*** [32 , 26]	0.324 0.302	*** [33 , 28]	0.350 0.245	*** [37 , 33]	0.336 0.277	*** [40 , 36]	0.331 0.263	*** [39 , 34]	0.322 0.249	*** [40 , 37]
GOF (behavior)		0.298 0.301	*** [34 , 24]	0.312 0.305	*** [32 , 24]	0.300 0.302	*** [32 , 24]	0.309 0.298	*** [33 , 25]	0.263 0.271	*** [37 , 27]	0.267 0.298	*** [40 , 28]	0.258 0.270	*** [39 , 26]	0.282 0.284	*** [40 , 29]

$^{***}p < 0.01$, $^{**}0.01 < p < 0.05$, $^{*}0.05 < p < 0.1$, $^{\dagger}p < 0.1$

Table 6.41: **Social norms for spending in friendship and advice networks**

		friendship networks								advice networks							
		cov		opv		sev		stv		cov		opv		sev		stv	
effect	function	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p
network selection:																	
1st period	**rate**	7.794 0.757	*** [1 , 0]	7.799 0.715	*** [1 , 0]	7.953 0.836	*** [1 , 0]	7.935 0.822	*** [1 , 0]	5.878 0.418	*** [1 , 0]	6.453 0.505	*** [1 , 0]	5.704 0.373	*** [1 , 0]	6.144 0.460	*** [1 , 0]
2nd period	**rate**	7.346 0.704	*** [1 , 0]	7.199 0.695	*** [1 , 0]	7.307 0.775	*** [1 , 0]	7.013 0.674	*** [1 , 0]	8.061 0.933	*** [1 , 0]	8.237 0.852	*** [1 , 0]	7.849 0.873	*** [1 , 0]	7.883 0.791	*** [1 , 0]
density	**eval**	-1.919 0.178	*** [0 , 1]	-1.947 0.177	*** [0 , 1]	-1.972 0.187	*** [0 , 1]	-1.935 0.186	*** [0 , 1]	-1.617 0.094	*** [0 , 1]	-1.604 0.092	*** [0 , 1]	-1.553 0.094	*** [0 , 1]	-1.596 0.085	*** [0 , 1]
reciprocity	**eval**	1.217 0.123	*** [1 , 0]	1.183 0.107	*** [1 , 0]	1.242 0.130	*** [1 , 0]	1.270 0.133	*** [1 , 0]	1.235 0.101	*** [1 , 0]	1.243 0.096	*** [1 , 0]	1.235 0.094	*** [1 , 0]	1.223 0.093	*** [1 , 0]
transitivity	**eval**	1.388 0.078	*** [1 , 0]	1.397 0.073	*** [1 , 0]	1.422 0.080	*** [1 , 0]	1.422 0.080	*** [1 , 0]	1.618 0.091	*** [1 , 0]	1.648 0.085	*** [1 , 0]	1.689 0.088	*** [1 , 0]	1.664 0.087	*** [1 , 0]
cyclicality	**eval**									-0.398 0.099	*** [0 , 0.996]	-0.429 0.070	*** [0 , 1]	-0.430 0.070	*** [0 , 1]	-0.453 0.068	*** [0 , 1]
popularity	**eval**	-0.137 0.026	*** [0 , 1]	-0.122 0.019	*** [0 , 1]	-0.141 0.028	*** [0 , 1]	-0.148 0.028	*** [0 , 1]	-0.116 0.025	*** [0 , 1]	-0.126 0.023	*** [0 , 1]	-0.141 0.025	*** [0 , 1]	-0.127 0.024	*** [0 , 1]
same age	eval	-0.015 0.054	[0.107 , 0.504]	0.020 0.065	[0.178 , 0.17]	0.033 0.074	[0.186 , 0.125]	0.009 0.054	[0.133 , 0.328]								
same gender	**eval**	0.328 0.062	*** [1 , 0]	0.387 0.060	*** [1 , 0]	0.337 0.059	*** [1 , 0]	0.381 0.065	*** [1 , 0]								
scp alter	**eval**									0.058 0.054	[0.802 , 0.026]	0.049 0.041	[0.739 , 0.032]	0.097 0.057	† [0.909 , 0.004]	0.058 0.051	[0.805 , 0.015]
scp ego	**eval**									-0.059 0.084	[0.003 , 0.178]	-0.035 0.063	[0.035 , 0.286]	-0.093 0.073	[0.001 , 0.61]	-0.123 0.048	* [0.001 , 0.966]
scp similarity	eval									0.173 0.201	[0.745 , 0.059]	0.023 0.165	[0.377 , 0.112]	0.065 0.146	[0.648 , 0.095]	-0.028 0.152	[0.465 , 0.195]
rsp alter	eval									-0.018 0.052	[0.078 , 0.145]	-0.003 0.041	[0.452 , 0.096]	0.042 0.067	[0.195 , 0.017]	0.018 0.057	[0.171 , 0.017]
rsp ego	**eval**									0.109 0.051	* [0.961 , 0.032]	0.073 0.060	[0.77 , 0.025]	0.160 0.059	** [0.967 , 0]	0.077 0.074	[0.55 , 0.005]
rsp similarity	eval									0.167 0.146	[0.852 , 0.072]	0.098 0.132	[0.691 , 0.115]	0.104 0.183	[0.466 , 0.069]	0.093 0.138	[0.73 , 0.194]
sri alter	eval									-0.023 0.061	[0.07 , 0.24]	0.002 0.060	[0.081 , 0.081]	-0.024 0.056	[0.165 , 0.236]	-0.025 0.057	[0.036 , 0.208]
sri ego	eval									-0.035 0.047	[0.486 , 0.54]	-0.034 0.042	[0.592 , 0.212]	-0.042 0.047	[0.309 , 0.393]	-0.043 0.042	[0.34 , 0.353]
sri similarity	eval									0.083 0.130	[0.905 , 0.1]	0.137 0.124	[0.967 , 0.095]	0.172 0.135	[0.921 , 0.06]	0.141 0.123	[0.949 , 0.08]
eri alter	eval									-0.051 0.048	[0.041 , 0.815]	-0.041 0.047	[0.035 , 0.717]	-0.079 0.053	[0.005 , 0.859]	-0.063 0.046	[0.007 , 0.801]
eri ego	**eval**									0.137 0.066	* [0.916 , 0.001]	0.111 0.059	† [0.856 , 0.001]	0.173 0.091	† [0.611 , 0]	0.134 0.062	* [0.887 , 0]
eri similarity	eval									0.039 0.139	[0.839 , 0.13]	0.145 0.151	[0.824 , 0.03]	0.215 0.167	[0.909 , 0.031]	0.207 0.154	[0.922 , 0.023]
con alter	eval	0.010 0.024	[0.525 , 0.266]	-0.001 0.026	[0.276 , 0.248]	0.018 0.022	[0.717 , 0.207]	0.020 0.024	[0.741 , 0.105]								
con ego	eval	-0.018 0.016	[0.599 , 0.531]	-0.009 0.015	[0.734 , 0.418]	-0.022 0.017	[0.599 , 0.733]	-0.013 0.017	[0.618 , 0.533]								
con similarity	eval	0.268 0.306	[0.905 , 0.179]	0.179 0.284	[0.912 , 0.189]	0.313 0.314	[0.933 , 0.12]	0.417 0.302	[0.973 , 0.093]								
cov alter	eval	-0.011 0.040	[0.151 , 0.564]							0.005 0.030	[0.489 , 0.273]						
cov ego	**eval**	0.009 0.032	[0.724 , 0.305]							-0.112 0.031	*** [0 , 1]						
cov similarity	eval	0.070 0.122	[0.797 , 0.277]							0.222 0.156	[0.801 , 0.023]						
opv alter	eval			0.016 0.039	[0.516 , 0.373]							-0.033 0.055	[0.009 , 0.124]				
opv ego	eval			-0.035 0.055	[0.04 , 0.335]							-0.025 0.052	[0.017 , 0.476]				
opv similarity	eval			0.037 0.103	[0.794 , 0.53]							0.164 0.128	[0.811 , 0.025]				
sev alter	**eval**					-0.074 0.033	* [0.007 , 0.972]							-0.030 0.038	[0.012 , 0.374]		
sev ego	eval					0.016 0.029	[0.715 , 0.44]							-0.034 0.045	[0.006 , 0.329]		
sev similarity	eval					0.122 0.182	[0.598 , 0.076]							0.137 0.134	[0.724 , 0.057]		
stv alter	eval							0.014 0.046	[0.487 , 0.289]							0.059 0.039	[0.923 , 0.042]
stv ego	**eval**							-0.102 0.045	* [0.001 , 0.911]							-0.022 0.041	[0.093 , 0.507]
stv similarity	**eval**							0.102 0.132	[0.826 , 0.114]							0.413 0.131	*** [0.999 , 0]
sat alter	eval	-0.002 0.021	[0.428 , 0.391]	-0.007 0.018	[0.393 , 0.355]	0.016 0.020	[0.805 , 0.186]	-0.020 0.026	[0.079 , 0.492]	0.008 0.028	[0.231 , 0.041]	0.017 0.023	[0.359 , 0.026]	0.017 0.023	[0.351 , 0.055]	0.006 0.024	[0.178 , 0.048]
sat ego	eval	-0.040 0.053	[0.239 , 0.617]	-0.045 0.055	[0.062 , 0.41]	-0.041 0.060	[0.142 , 0.446]	-0.013 0.054	[0.335 , 0.332]	-0.019 0.032	[0.031 , 0.347]	-0.012 0.031	[0.038 , 0.198]	-0.022 0.032	[0.024 , 0.255]	0.010 0.032	[0.107 , 0.016]
sat similarity	**eval**	0.328 0.133	* [0.999 , 0.044]	0.398 0.132	*** [0.999 , 0.008]	0.350 0.147	* [0.991 , 0.057]	0.432 0.140	*** [0.999 , 0.012]	0.102 0.187	[0.467 , 0.083]	0.077 0.168	[0.381 , 0.099]	0.220 0.175	[0.806 , 0.019]	0.136 0.173	[0.481 , 0.044]
I(same gender*ego sat)	eval	0.067 0.056	[0.571 , 0.003]	0.034 0.050	[0.222 , 0.017]	0.078 0.058	[0.537 , 0.004]	0.036 0.059	[0.21 , 0.021]								
I(same age*ego sat)	**eval**	0.061 0.036	. [0.859 , 0.074]	0.082 0.043	[0.929 , 0.007]	0.064 0.046	[0.807 , 0.04]	0.044 0.036	[0.768 , 0.071]								
I(con sim*ego sat)	eval	-0.072 0.175	[0.447 , 0.946]	0.037 0.165	[0.551 , 0.659]	-0.065 0.179	[0.46 , 0.935]	-0.066 0.175	[0.42 , 0.902]								
I(cov sim*ego sat)	eval	0.044 0.080	[0.454 , 0.283]							0.076 0.074	[0.769 , 0.255]						
I(opv sim*ego sat)	eval			-0.044 0.065	[0.443 , 0.491]							0.009 0.061	[0.385 , 0.624]				
I(sev sim*ego sat)	eval					-0.003 0.128	[0.123 , 0.16]							0.031 0.067	[0.439 , 0.436]		
I(stv sim*ego sat)	**eval**							0.004 0.075	[0.679 , 0.532]							-0.095 0.058	† [0.063 , 0.9]
I(scp sim*ego sat)	eval									0.134 0.094	[0.861 , 0.018]	0.149 0.095	[0.904 , 0.008]	0.116 0.095	[0.802 , 0.026]	0.120 0.087	[0.859 , 0.03]
I(rsp sim*ego sat)	eval									0.058 0.070	[0.899 , 0.501]	0.081 0.066	[0.944 , 0.418]	0.069 0.068	[0.816 , 0.533]	0.061 0.066	[0.786 , 0.375]
I(sri sim*ego sat)	eval									0.079 0.073	[0.84 , 0.103]	0.067 0.067	[0.71 , 0.117]	0.032 0.070	[0.681 , 0.224]	0.075 0.073	[0.696 , 0.103]
I(eri sim*ego sat)	eval									0.033 0.073	[0.727 , 0.327]	0.069 0.083	[0.703 , 0.135]	0.085 0.078	[0.807 , 0.293]	0.059 0.084	[0.667 , 0.187]
behavior change:																	
1st period	**rate**	8.326 1.249	*** [1 , 0]	8.225 1.167	*** [1 , 0]	7.835 1.240	*** [1 , 0]	7.883 1.224	*** [1 , 0]	9.001 1.392	*** [1 , 0]	8.886 1.312	*** [1 , 0]	9.067 1.256	*** [1 , 0]	8.426 1.221	*** [1 , 0]
2nd period	**rate**	8.546 1.335	*** [1 , 0]	8.180 1.119	*** [1 , 0]	8.059 1.251	*** [1 , 0]	16.466 4.247	*** [1 , 0]	8.897 1.640	*** [1 , 0]	16.968 2.951	*** [1 , 0]	15.818 3.014	*** [1 , 0]	15.657 2.881	*** [1 , 0]
linear	**eval**	-0.064 0.016	*** [0 , 0.996]	-0.054 0.017	*** [0 , 0.973]	-0.066 0.018	*** [0 , 0.994]	-0.069 0.016	*** [0 , 0.997]	-0.057 0.015	*** [0.001 , 1]	-0.064 0.014	*** [0 , 1]	-0.071 0.014	*** [0 , 1]	-0.071 0.014	*** [0 , 1]
average similarity	**eval**	0.755 0.367	* [0.817 , 0.076]	0.802 0.354	* [0.857 , 0.048]	0.507 0.444	[0.652 , 0.18]	0.659 0.386	† [0.767 , 0.133]	1.777 0.623	*** [0.993 , 0]	1.699 0.550	*** [0.995 , 0]	1.270 0.564	* [0.981 , 0.001]	1.397 0.580	* [0.982 , 0]
goodness of fit:		μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]
GOF (outdegree)		0.293 0.300	*** [30 , 22]	0.316 0.309	*** [30 , 22]	0.266 0.302	*** [26 , 18]	0.308 0.280	*** [29 , 21]	0.339 0.258	*** [31 , 29]	0.299 0.233	*** [32 , 30]	0.323 0.275	*** [34 , 32]	0.319 0.239	*** [32 , 31]
GOF (behavior)		0.359 0.292	*** [30 , 24]	0.371 0.289	*** [30 , 24]	0.331 0.290	*** [26 , 23]	0.389 0.278	*** [29 , 23]	0.377 0.352	*** [31 , 21]	0.369 0.332	*** [32 , 23]	0.368 0.333	*** [34 , 25]	0.358 0.330	*** [32 , 23]

$^{***}p < 0.01$, $^{**}0.01 < p < 0.05$, $^{*}0.05 < p < 0.1$, $^{\dagger}p < 0.1$

Table 6.42: **Social norms for donations in friendship and advice networks**

		friendship networks								advice networks							
		opv		cov		stv		sev		opv		cov		stv		sev	
effect	function	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p
network selection:																	
1st period	**rate**	7.020 0.792	*** [1 , 0]	7.156 0.797	*** [1 , 0]	7.109 0.776	*** [1 , 0]	7.377 0.752	*** [1 , 0]	7.128 0.581	*** [1 , 0]	6.706 0.582	*** [1 , 0]	6.778 0.557	*** [1 , 0]	6.565 0.498	*** [1 , 0]
2nd period	**rate**	7.051 0.538	*** [1 , 0]	6.979 0.522	*** [1 , 0]	6.889 0.469	*** [1 , 0]	7.697 0.534	*** [1 , 0]	8.567 0.833	*** [1 , 0]	8.742 0.962	*** [1 , 0]	7.687 0.684	*** [1 , 0]	8.569 0.813	*** [1 , 0]
density	**eval**	-2.169 0.119	*** [0 , 1]	-2.128 0.120	*** [0 , 1]	-2.150 0.116	*** [0 , 1]	-2.130 0.112	*** [0 , 1]	-1.425 0.066	*** [0 , 1]	-1.522 0.072	*** [0 , 1]	-1.489 0.070	*** [0 , 1]	-1.417 0.066	*** [0 , 1]
reciprocity	**eval**	1.125 0.103	*** [1 , 0]	1.131 0.100	*** [1 , 0]	1.242 0.109	*** [1 , 0]	1.185 0.112	*** [1 , 0]	1.145 0.082	*** [1 , 0]	1.090 0.086	*** [1 , 0]	1.133 0.089	*** [1 , 0]	1.117 0.081	*** [1 , 0]
transitivity	**eval**	1.316 0.071	*** [1 , 0]	1.280 0.075	*** [1 , 0]	1.330 0.072	*** [1 , 0]	1.345 0.069	*** [1 , 0]	1.555 0.089	*** [1 , 0]	1.575 0.091	*** [1 , 0]	1.559 0.096	*** [1 , 0]	1.531 0.092	*** [1 , 0]
cyclicality	**eval**									-0.370 0.070	*** [0 , 1]	-0.384 0.081	*** [0 , 1]	-0.381 0.084	*** [0 , 0.999]	-0.388 0.069	*** [0 , 1]
popularity	**eval**	-0.096 0.019	*** [0 , 1]	-0.092 0.021	*** [0 , 1]	-0.109 0.021	*** [0 , 1]	-0.097 0.019	*** [0 , 1]	-0.141 0.020	*** [0 , 1]	-0.130 0.022	*** [0 , 1]	-0.140 0.023	*** [0 , 1]	-0.136 0.019	*** [0 , 1]
same age	eval	0.043 0.059	 [0.435 , 0.252]	0.030 0.053	 [0.775 , 0.576]	0.046 0.051	 [0.654 , 0.276]	0.061 0.052	 [0.863 , 0.258]								
same gender	**eval**	0.496 0.060	*** [1 , 0]	0.470 0.067	*** [1 , 0]	0.433 0.055	*** [1 , 0]	0.437 0.060	*** [1 , 0]								
scp alter	eval									0.043 0.043	 [0.452 , 0.12]	0.021 0.051	 [0.309 , 0.072]	0.039 0.055	 [0.487 , 0.052]	0.040 0.052	 [0.365 , 0.045]
scp ego	**eval**									-0.107 0.041	** [0.001 , 0.999]	-0.094 0.047	* [0.003 , 0.988]	-0.150 0.045	*** [0 , 1]	-0.097 0.050	† [0 , 0.976]
scp similarity	eval									-0.104 0.122	 [0.255 , 0.766]	-0.045 0.125	 [0.608 , 0.577]	-0.076 0.131	 [0.37 , 0.406]	0.015 0.120	 [0.676 , 0.235]
rsp alter	eval									0.034 0.047	 [0.402 , 0.034]	0.027 0.045	 [0.486 , 0.024]	0.031 0.055	 [0.281 , 0.023]	0.033 0.055	 [0.117 , 0.016]
rsp ego	eval									0.037 0.046	 [0.688 , 0.085]	0.028 0.051	 [0.635 , 0.169]	0.017 0.056	 [0.568 , 0.098]	0.066 0.048	 [0.755 , 0.008]
rsp similarity	**eval**									0.271 0.149	† [0.906 , 0.009]	0.309 0.135	* [0.898 , 0.005]	0.253 0.159	 [0.884 , 0.02]	0.224 0.167	 [0.785 , 0.011]
sri alter	eval									0.041 0.055	 [0.335 , 0.018]	0.010 0.062	 [0.056 , 0.057]	0.002 0.058	 [0.072 , 0.069]	0.033 0.052	 [0.387 , 0.027]
sri ego	eval									-0.008 0.041	 [0.731 , 0.479]	0.002 0.043	 [0.719 , 0.434]	-0.040 0.042	 [0.189 , 0.322]	0.016 0.047	 [0.663 , 0.267]
sri similarity	**eval**									0.167 0.119	 [0.985 , 0.094]	0.173 0.123	 [0.985 , 0.049]	0.191 0.129	 [0.968 , 0.021]	0.323 0.129	* [0.998 , 0.01]
eri alter	**eval**									-0.081 0.037	* [0.008 , 0.98]	-0.064 0.036	† [0.026 , 0.968]	-0.059 0.040	† [0.026 , 0.883]	-0.117 0.037	*** [0.001 , 0.99]
eri ego	**eval**									0.146 0.057	* [0.967 , 0]	0.179 0.061	*** [0.977 , 0]	0.120 0.058	* [0.848 , 0]	0.159 0.070	* [0.861 , 0]
eri similarity	**eval**									0.185 0.135	 [0.843 , 0.038]	0.323 0.130	* [0.974 , 0.004]	0.271 0.148	† [0.949 , 0.005]	0.235 0.129	† [0.941 , 0.019]
giv alter	eval	0.029 0.043	 [0.848 , 0.461]	0.027 0.038	 [0.856 , 0.48]	0.010 0.039	 [0.755 , 0.677]	0.027 0.037	 [0.846 , 0.427]								
giv ego	eval	-0.004 0.039	 [0.832 , 0.482]	-0.005 0.036	 [0.711 , 0.647]	0.006 0.037	 [0.818 , 0.425]	0.003 0.035	 [0.838 , 0.644]								
giv similarity	eval	0.141 0.395	 [0.746 , 0.532]	0.312 0.393	 [0.769 , 0.354]	0.133 0.370	 [0.668 , 0.527]	0.094 0.365	 [0.548 , 0.573]								
opv alter	eval	0.039 0.033	 [0.868 , 0.185]							-0.034 0.046	 [0.004 , 0.266]						
opv ego	eval	-0.005 0.068	 [0.056 , 0.053]							-0.012 0.040	 [0.015 , 0.467]						
opv similarity	**eval**	0.082 0.117	 [0.604 , 0.428]							0.277 0.109	* [0.976 , 0.002]						
cov alter	eval			0.008 0.028	 [0.696 , 0.316]							-0.014 0.024	 [0.15 , 0.778]				
cov ego	**eval**			0.077 0.045	† [0.904 , 0.002]							-0.090 0.035	* [0 , 0.97]				
cov similarity	eval			0.158 0.123	 [0.683 , 0.156]							0.121 0.136	 [0.488 , 0.052]				
stv alter	eval					-0.017 0.034	 [0.394 , 0.668]							0.059 0.039	 [0.908 , 0.005]		
stv ego	**eval**					-0.062 0.062	 [0.004 , 0.447]							-0.076 0.033	* [0.002 , 0.898]		
stv similarity	**eval**					0.119 0.141	 [0.611 , 0.059]							0.362 0.136	** [0.982 , 0]		
sev alter	**eval**							-0.040 0.031	 [0.023 , 0.82]							-0.049 0.029	† [0.005 , 0.807]
sev ego	eval							0.030 0.030	 [0.743 , 0.122]							-0.026 0.027	 [0.024 , 0.559]
sev similarity	**eval**							0.230 0.137	 [0.872 , 0.031]							0.231 0.114	* [0.938 , 0.019]
sat alter	eval	-0.018 0.019	 [0.269 , 0.617]	-0.019 0.017	 [0.336 , 0.755]	-0.020 0.016	 [0.222 , 0.843]	-0.016 0.016	 [0.338 , 0.544]	0.018 0.018	 [0.395 , 0.069]	0.013 0.018	 [0.397 , 0.103]	0.004 0.021	 [0.135 , 0.146]	0.023 0.017	 [0.466 , 0.048]
sat ego	eval	0.054 0.069	 [0.459 , 0.025]	0.060 0.060	 [0.666 , 0.018]	0.043 0.055	 [0.478 , 0.032]	0.039 0.053	 [0.374 , 0.043]	-0.015 0.023	 [0.058 , 0.636]	-0.013 0.022	 [0.076 , 0.661]	-0.010 0.028	 [0.065 , 0.35]	-0.014 0.024	 [0.041 , 0.47]
sat similarity	**eval**	0.213 0.131	 [0.969 , 0.211]	0.213 0.131	 [0.963 , 0.283]	0.262 0.126	* [0.989 , 0.081]	0.170 0.112	 [0.969 , 0.239]	0.146 0.142	 [0.738 , 0.025]	0.140 0.150	 [0.623 , 0.026]	0.182 0.153	 [0.681 , 0.013]	0.051 0.133	 [0.605 , 0.104]
I(same gender*ego sat)	eval	0.066 0.072	 [0.119 , 0.001]	0.049 0.067	 [0.123 , 0.006]	0.041 0.064	 [0.109 , 0.004]	0.019 0.056	 [0.122 , 0.03]								
I(same age*ego sat)	eval	-0.046 0.036	 [0.153 , 0.726]	-0.036 0.035	 [0.171 , 0.866]	-0.017 0.049	 [0.139 , 0.236]	0.009 0.050	 [0.362 , 0.088]								
I(giv sim*ego sat)	eval	-0.246 0.185	 [0.126 , 0.905]	-0.230 0.183	 [0.129 , 0.971]	-0.218 0.159	 [0.13 , 0.905]	-0.142 0.150	 [0.251 , 0.911]								
I(opv sim*ego sat)	eval	-0.020 0.082	 [0.468 , 0.416]							0.003 0.058	 [0.618 , 0.724]						
I(cov sim*ego sat)	eval			-0.017 0.093	 [0.137 , 0.614]							0.070 0.078	 [0.709 , 0.046]				
I(stv sim*ego sat)	eval					0.009 0.074	 [0.623 , 0.392]							-0.011 0.088	 [0.254 , 0.188]		
I(sev sim*ego sat)	eval							0.043 0.071	 [0.599 , 0.329]							0.033 0.057	 [0.612 , 0.311]
I(scp sim*ego sat)	**eval**									0.137 0.073	† [0.95 , 0.061]	0.157 0.066	* [0.961 , 0.024]	0.164 0.085	† [0.948 , 0.018]	0.119 0.069	† [0.931 , 0.05]
I(rsp sim*ego sat)	**eval**									0.118 0.063	† [0.946 , 0.146]	0.071 0.066	 [0.819 , 0.249]	0.065 0.068	 [0.79 , 0.225]	0.046 0.071	 [0.612 , 0.268]
I(sri sim*ego sat)	eval									0.026 0.070	 [0.573 , 0.625]	0.005 0.070	 [0.658 , 0.661]	0.001 0.072	 [0.538 , 0.776]	0.031 0.075	 [0.629 , 0.639]
I(eri sim*ego sat)	eval									0.070 0.072	 [0.818 , 0.149]	0.083 0.063	 [0.913 , 0.192]	0.051 0.078	 [0.651 , 0.152]	0.063 0.072	 [0.788 , 0.212]
behavior change:																	
1st period	**rate**	2.219 0.336	*** [1 , 0]	2.199 0.321	*** [1 , 0]	2.005 0.269	*** [1 , 0]	2.049 0.286	*** [1 , 0]	2.122 0.254	*** [1 , 0]	1.889 0.229	*** [1 , 0]	2.044 0.248	*** [1 , 0]	4.854 1.460	*** [1 , 0]
2nd period	**rate**	4.311 1.068	*** [1 , 0]	4.229 1.043	*** [1 , 0]	2.903 0.629	*** [1 , 0]	2.879 0.626	*** [1 , 0]	2.724 0.456	*** [1 , 0]	2.321 0.416	*** [1 , 0]	5.520 1.487	*** [1 , 0]	2.765 0.446	*** [1 , 0]
linear	**eval**	-0.372 0.053	*** [0 , 1]	-0.345 0.045	*** [0 , 1]	-0.371 0.048	*** [0 , 1]	-0.348 0.045	*** [0 , 1]	-0.248 0.041	*** [0 , 1]	-0.266 0.049	*** [0 , 1]	-0.244 0.040	*** [0 , 1]	-0.235 0.039	*** [0 , 1]
average similarity	eval	-0.534 0.648	 [0.285 , 0.943]	-0.463 0.671	 [0.394 , 0.925]	-0.833 0.642	 [0.131 , 0.983]	-0.960 0.626	 [0.089 , 0.99]	1.706 2.403	 [0.564 , 0]	1.794 2.499	 [0.571 , 0]	1.043 1.626	 [0.627 , 0]	1.673 2.236	 [0.579 , 0]
goodness of fit:		μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]
GOF (outdegree)		0.365 0.317	*** [33 , 25]	0.357 0.315	*** [35 , 27]	0.328 0.283	*** [34 , 26]	0.361 0.319	*** [36 , 29]	0.396 0.274	*** [35 , 34]	0.414 0.296	*** [34 , 33]	0.398 0.257	*** [34 , 33]	0.448 0.298	*** [36 , 33]
GOF (behavior)		0.360 0.256	*** [33 , 26]	0.353 0.255	*** [35 , 25]	0.346 0.248	*** [34 , 26]	0.357 0.252	*** [36 , 27]	0.322 0.259	*** [35 , 29]	0.302 0.255	*** [34 , 27]	0.339 0.274	*** [34 , 27]	0.283 0.252	*** [36 , 31]

$^{***}p < 0.01$, $^{**}0.01 < p < 0.05$, $^{*}0.05 < p < 0.1$, $^{\dagger}p < 0.1$

Table 6.43: **Effect of social norms for saving on life satisfaction**

		friendship networks								advice networks							
		stv		sev		cov		opv		stv		sev		cov		opv	
effect	function	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p
network selection:																	
1st period	**rate**	7.608 0.762	*** [1 , 0]	7.321 0.726	*** [1 , 0]	7.486 0.792	*** [1 , 0]	7.372 0.753	*** [1 , 0]	6.502 0.556	*** [1 , 0]	6.522 0.634	*** [1 , 0]	6.693 0.596	*** [1 , 0]	6.245 0.555	*** [1 , 0]
2nd period	**rate**	7.354 0.596	*** [1 , 0]	7.155 0.535	*** [1 , 0]	7.242 0.497	*** [1 , 0]	7.019 0.492	*** [1 , 0]	7.851 0.772	*** [1 , 0]	8.025 0.777	*** [1 , 0]	7.698 0.882	*** [1 , 0]	8.103 0.779	*** [1 , 0]
density	**eval**	-2.073 0.129	*** [0 , 1]	-2.049 0.149	*** [0 , 1]	-2.127 0.115	*** [0 , 1]	-2.005 0.125	*** [0 , 1]	-1.533 0.067	*** [0 , 1]	-1.534 0.076	*** [0 , 1]	-1.521 0.072	*** [0 , 1]	-1.502 0.070	*** [0 , 1]
reciprocity	**eval**	1.148 0.102	*** [1 , 0]	1.143 0.105	*** [1 , 0]	1.093 0.098	*** [1 , 0]	1.111 0.119	*** [1 , 0]	1.270 0.089	*** [1 , 0]	1.202 0.103	*** [1 , 0]	1.235 0.099	*** [1 , 0]	1.247 0.092	*** [1 , 0]
transitivity	**eval**	1.319 0.068	*** [1 , 0]	1.310 0.069	*** [1 , 0]	1.252 0.070	*** [1 , 0]	1.328 0.068	*** [1 , 0]	1.596 0.089	*** [1 , 0]	1.471 0.104	*** [1 , 0]	1.633 0.095	*** [1 , 0]	1.574 0.096	*** [1 , 0]
cyclicality	**eval**									-0.423 0.072	*** [0 , 1]	-0.392 0.081	*** [0 , 1]	-0.349 0.090	*** [0 , 1]	-0.399 0.078	*** [0 , 1]
popularity	**eval**	-0.079 0.019	*** [0 , 1]	-0.087 0.021	*** [0 , 1]	-0.066 0.019	*** [0 , 1]	-0.072 0.015	*** [0 , 1]	-0.125 0.022	*** [0 , 1]	-0.101 0.023	*** [0 , 1]	-0.132 0.024	*** [0 , 1]	-0.139 0.022	*** [0 , 1]
same age	eval	-0.059 0.070	[0.008 , 0.649]	-0.020 0.066	[0.124 , 0.407]	-0.037 0.062	[0.17 , 0.604]	-0.017 0.063	[0.146 , 0.452]								
same gender	**eval**	0.340 0.072	*** [1 , 0]	0.345 0.072	*** [1 , 0]	0.335 0.074	*** [1 , 0]	0.280 0.051	*** [1 , 0]								
scp alter	**eval**									0.089 0.038	* [0.986 , 0.012]	0.105 0.046	* [0.931 , 0.009]	0.134 0.041	*** [0.999 , 0.002]	0.091 0.038	* [0.919 , 0.016]
scp ego	eval									-0.019 0.055	[0.081 , 0.263]	-0.032 0.086	[0.012 , 0.111]	-0.044 0.068	[0.041 , 0.412]	-0.073 0.057	[0.002 , 0.773]
scp similarity	**eval**									0.129 0.156	[0.72 , 0.07]	0.261 0.171	[0.896 , 0.005]	0.212 0.140	[0.953 , 0.032]	0.293 0.137	* [0.979 , 0.019]
rsp alter	**eval**									0.020 0.040	[0.872 , 0.09]	0.041 0.050	[0.832 , 0.062]	0.085 0.038	* [0.994 , 0.022]	0.048 0.043	[0.777 , 0.037]
rsp ego	**eval**									0.101 0.061	† [0.763 , 0.001]	0.076 0.061	[0.784 , 0.006]	0.077 0.071	[0.485 , 0.003]	0.081 0.053	[0.829 , 0.006]
rsp similarity	eval									0.062 0.128	[0.743 , 0.186]	0.025 0.142	[0.613 , 0.415]	0.110 0.136	[0.798 , 0.245]	0.147 0.134	[0.872 , 0.093]
sri alter	eval									-0.015 0.042	[0.198 , 0.48]	0.053 0.056	[0.512 , 0.012]	0.007 0.054	[0.158 , 0.098]	-0.005 0.049	[0.177 , 0.262]
sri ego	**eval**									-0.046 0.043	[0.093 , 0.642]	-0.048 0.039	[0.293 , 0.834]	-0.009 0.036	[0.728 , 0.486]	-0.067 0.038	† [0.175 , 0.822]
sri similarity	**eval**									0.247 0.123	* [0.993 , 0.039]	0.280 0.126	* [0.997 , 0.033]	0.269 0.114	* [0.999 , 0.024]	0.288 0.119	* [0.999 , 0.038]
eri alter	**eval**									-0.074 0.037	* [0.056 , 0.939]	-0.076 0.041	† [0.02 , 0.914]	-0.077 0.036	* [0.017 , 0.974]	-0.041 0.037	[0.259 , 0.902]
eri ego	**eval**									0.071 0.064	[0.545 , 0.002]	0.046 0.065	[0.318 , 0.029]	0.099 0.067	[0.55 , 0]	0.094 0.049	† [0.806 , 0.009]
eri similarity	eval									0.134 0.125	[0.893 , 0.11]	0.115 0.133	[0.806 , 0.126]	0.204 0.131	[0.874 , 0.023]	0.164 0.128	[0.914 , 0.052]
sav alter	**eval**	0.016 0.019	[0.804 , 0.101]	0.013 0.018	[0.708 , 0.202]	0.016 0.018	[0.778 , 0.139]	0.024 0.014	† [0.964 , 0.119]								
sav ego	eval	-0.011 0.014	[0.209 , 0.822]	-0.020 0.015	[0.081 , 0.953]	-0.016 0.015	[0.089 , 0.915]	-0.012 0.014	[0.088 , 0.94]								
sav similarity	**eval**	0.490 0.292	† [0.863 , 0.017]	0.429 0.270	† [0.968 , 0.059]	0.570 0.297	† [0.971 , 0.021]	0.617 0.250	* [0.995 , 0.011]								
stv alter	eval	-0.010 0.038	[0.312 , 0.479]							0.016 0.036	[0.713 , 0.297]						
stv ego	eval	-0.046 0.050	[0.013 , 0.609]							-0.067 0.042	[0.011 , 0.915]						
stv similarity	**eval**	0.282 0.132	* [0.984 , 0.006]							0.336 0.144	* [0.963 , 0]						
sev alter	eval			-0.033 0.044	[0.013 , 0.364]							-0.040 0.034	[0.06 , 0.752]				
sev ego	eval			-0.010 0.042	[0.058 , 0.127]							-0.012 0.050	[0.064 , 0.135]				
sev similarity	**eval**			0.096 0.120	[0.782 , 0.255]							0.352 0.135	** [0.961 , 0.016]				
cov alter	eval					-0.045 0.032	[0.033 , 0.971]							-0.018 0.027	[0.277 , 0.592]		
cov ego	**eval**					0.016 0.041	[0.339 , 0.072]							-0.093 0.029	*** [0 , 1]		
cov similarity	eval					0.086 0.125	[0.517 , 0.33]							0.114 0.120	[0.952 , 0.174]		
opv alter	eval							-0.018 0.036	[0.174 , 0.652]							-0.066 0.047	[0.009 , 0.44]
opv ego	eval							-0.056 0.049	[0.016 , 0.463]							0.024 0.043	[0.118 , 0.156]
opv similarity	**eval**							0.090 0.105	[0.784 , 0.276]							0.249 0.120	* [0.94 , 0.026]
behavior change:																	
1st period	**rate**	6.882 0.821	*** [1 , 0]	6.944 0.859	*** [1 , 0]	7.038 0.836	*** [1 , 0]	6.631 0.785	*** [1 , 0]	6.655 0.935	*** [1 , 0]	5.857 0.958	*** [1 , 0]	6.602 1.029	*** [1 , 0]	6.085 0.889	*** [1 , 0]
2nd period	**rate**	10.398 2.091	*** [1 , 0]	16.397 3.844	*** [1 , 0]	11.421 2.188	*** [1 , 0]	10.804 1.905	*** [1 , 0]	21.762 5.669	*** [1 , 0]	7.853 1.439	*** [1 , 0]	17.803 5.448	*** [1 , 0]	8.184 1.398	*** [1 , 0]
linear	**eval**	-0.086 0.023	*** [0 , 1]	-0.070 0.019	*** [0 , 1]	-0.076 0.019	*** [0 , 1]	-0.074 0.018	*** [0 , 1]	-0.068 0.015	*** [0 , 1]	-0.076 0.021	*** [0.001 , 1]	-0.065 0.017	*** [0.002 , 1]	-0.071 0.017	*** [0 , 1]
save: average similarity	**eval**	1.308 0.438	*** [0.999 , 0.006]	1.216 0.423	*** [0.999 , 0.004]	1.286 0.465	** [0.998 , 0.007]	1.220 0.426	*** [0.994 , 0.005]	1.834 0.522	*** [1 , 0.003]	2.252 0.676	*** [1 , 0.005]	1.690 0.583	*** [1 , 0.008]	2.025 0.587	*** [1 , 0.004]
effect from sat	eval	-0.002 0.013	-0.008 [0.615 , 0.675]	0.001 0.013	[0.438 , 0.828]	-0.010 0.014	[0.583 , 0.749]	0.012	[0.405 , 0.682]	0.010 0.012	[0.931 , 0.407]	0.010 0.017	[0.886 , 0.582]	0.008 0.012	[0.939 , 0.519]	0.011 0.014	[0.923 , 0.628]
I(avg sim*sat)	eval	0.396 0.349	0.277 [0.995 , 0.213]	0.288 0.322	[0.971 , 0.373]	0.334	[0.979 , 0.336]	0.266 0.322	[0.931 , 0.419]	0.295 0.389	0.579 [0.987 , 0.362]	0.529	[0.992 , 0.252]	0.375 0.464	[0.982 , 0.393]	0.495 0.491	[0.992 , 0.434]
goodness of fit:		μ_p σ_p [converge / fit]	χ^2 test	μ_p σ_p [converge / fit]	χ^2 test	μ_p σ_p [converge / fit]	χ^2 test	μ_p σ_p [converge / fit]	χ^2 test	μ_p σ_p [converge / fit]	χ^2 test	μ_p σ_p [converge / fit]	χ^2 test	μ_p σ_p [converge / fit]	χ^2 test	μ_p σ_p [converge / fit]	χ^2 test
GOF (outdegree)		0.331 0.313	*** [32 , 24]	0.363 0.314	*** [32 , 25]	0.362 0.311	*** [33 , 27]	0.324 0.302	*** [34 , 26]	0.350 0.245	*** [33 , 31]	0.336 0.277	*** [31 , 28]	0.331 0.263	*** [33 , 31]	0.322 0.249	*** [35 , 33]
GOF (behavior)		0.298 0.301	*** [32 , 22]	0.312 0.305	*** [32 , 22]	0.300 0.302	*** [33 , 22]	0.309 0.298	*** [34 , 24]	0.263 0.271	*** [33 , 25]	0.267 0.298	*** [31 , 21]	0.258 0.270	*** [33 , 24]	0.282 0.284	*** [35 , 25]

$^{***}p < 0.01$, $^{**}0.01 < p < 0.05$, $^{*}0.05 < p < 0.1$, $^{\dagger}p < 0.1$

Table 6.44: **Effect of social norms for spending on life satisfaction**

		friendship networks								advice networks							
		cov		opv		sev		stv		cov		opv		sev		stv	
effect	function	μ_θ σ_θ	fisher's p fisher [l,r] p	μ_θ σ_θ	fisher's p fisher [l,r] p	μ_θ σ_θ	fisher's p fisher [l,r] p	μ_θ σ_θ	fisher's p fisher [l,r] p	μ_θ σ_θ	fisher's p fisher [l,r] p	μ_θ σ_θ	fisher's p fisher [l,r] p	μ_θ σ_θ	fisher's p fisher [l,r] p	μ_θ σ_θ	fisher's p fisher [l,r] p
network selection:																	
1st period	**rate**	7.567 0.813	*** [1 , 0]	7.139 0.676	*** [1 , 0]	7.528 0.708	*** [1 , 0]	7.896 0.731	*** [1 , 0]	5.661 0.404	*** [1 , 0]	5.716 0.475	*** [1 , 0]	5.711 0.416	*** [1 , 0]	6.426 0.503	*** [1 , 0]
2nd period	**rate**	6.760 0.690	*** [1 , 0]	6.693 0.659	*** [1 , 0]	7.220 0.732	*** [1 , 0]	7.266 0.711	*** [1 , 0]	7.403 0.982	*** [1 , 0]	7.623 0.931	*** [1 , 0]	7.714 0.892	*** [1 , 0]	8.301 0.988	*** [1 , 0]
density	**eval**	-1.909 0.136	*** [0 , 1]	-1.788 0.157	*** [0 , 1]	-1.769 0.163	*** [0 , 1]	-1.841 0.140	*** [0 , 1]	-1.673 0.095	*** [0 , 1]	-1.646 0.125	*** [0 , 1]	-1.593 0.108	*** [0 , 1]	-1.660 0.096	*** [0 , 1]
reciprocity	**eval**	1.273 0.114	*** [1 , 0]	1.295 0.099	*** [1 , 0]	1.348 0.108	*** [1 , 0]	1.263 0.111	*** [1 , 0]	1.231 0.122	*** [1 , 0]	1.261 0.120	*** [1 , 0]	1.236 0.112	*** [1 , 0]	1.251 0.120	*** [1 , 0]
transitivity	**eval**	1.380 0.069	*** [1 , 0]	1.357 0.068	*** [1 , 0]	1.402 0.068	*** [1 , 0]	1.442 0.070	*** [1 , 0]	1.736 0.106	*** [1 , 0]	1.649 0.114	*** [1 , 0]	1.648 0.112	*** [1 , 0]	1.694 0.114	*** [1 , 0]
cyclicality	**eval**									-0.455 0.078	*** [0 , 1]	-0.423 0.078	*** [0 , 1]	-0.425 0.078	*** [0 , 1]	-0.479 0.079	*** [0 , 1]
popularity	**eval**	-0.145 0.026	*** [0 , 1]	-0.137 0.023	*** [0 , 1]	-0.163 0.025	*** [0 , 1]	-0.153 0.023	*** [0 , 1]	-0.101 0.025	*** [0 , 1]	-0.107 0.025	*** [0 , 1]	-0.119 0.026	*** [0 , 1]	-0.099 0.023	*** [0 , 1]
same age	eval	0.057 0.051	[0.888 , 0.105]	0.030 0.055	[0.257 , 0.159]	0.011 0.069	[0.075 , 0.145]	0.069 0.049	[0.473 , 0.099]								
same gender	**eval**	0.332 0.063	*** [1 , 0]	0.283 0.046	*** [1 , 0]	0.354 0.055	*** [1 , 0]	0.301 0.045	*** [1 , 0]								
scp alter	**eval**									0.055		0.050		0.100	†	0.031	
scp ego	eval									0.047 -0.013	[0.828 , 0.071]	0.047 -0.005	[0.866 , 0.046]	0.055 -0.009	[0.957 , 0.012]	0.043 -0.055	[0.749 , 0.099]
scp similarity	eval									0.079 -0.094	[0.075 , 0.186]	0.066 -0.082	[0.108 , 0.192]	0.077 0.050	[0.037 , 0.203]	0.045 -0.081	[0.043 , 0.708]
rsp alter	eval									0.166 0.019	[0.32 , 0.281]	0.139 -0.007	[0.188 , 0.55]	0.179 0.013	[0.505 , 0.105]	0.136 -0.027	[0.33 , 0.38]
rsp ego	**eval**									0.044 0.092	[0.815 , 0.156]	0.040 0.113	[0.619 , 0.354]	0.049 0.133	[0.503 , 0.159]	0.035 0.064	[0.388 , 0.614]
rsp similarity	eval									0.065 -0.056	[0.697 , 0.004]	0.043 -0.014	[0.903 , 0.011]	0.068 -0.040	[0.871 , 0]	0.058 0.019	[0.565 , 0.013]
sri alter	eval									0.167 0.040	[0.173 , 0.475]	0.153 0.027	[0.521 , 0.311]	0.173 0.001	[0.295 , 0.321]	0.133 -0.018	[0.45 , 0.275]
sri ego	**eval**									0.060 -0.068	[0.814 , 0.194]	0.054 -0.038	[0.618 , 0.225]	0.052 -0.121	[0.645 , 0.208]	0.048 -0.076	[0.569 , 0.386]
sri similarity	eval									0.070 -0.035	[0.145 , 0.777]	0.053 0.115	[0.235 , 0.558]	0.058 0.063	[0.058 , 0.778]	0.067 0.180	[0.032 , 0.72]
eri alter	**eval**									0.153 -0.096	[0.663 , 0.579]	0.145 -0.039	[0.817 , 0.366]	0.154 -0.101	[0.566 , 0.439]	0.144 † -0.078	[0.912 , 0.183]
eri ego	**eval**									0.054 0.123	[0.016 , 0.93]	0.056 0.106	[0.072 , 0.633]	0.059 0.115	[0.006 , 0.911]	0.054 0.134	[0.019 , 0.849] †
eri similarity	eval									0.090 -0.038	[0.756 , 0.005]	0.084 -0.006	[0.665 , 0.005]	0.116 -0.028	[0.249 , 0.002]	0.081 0.018	[0.804 , 0.001]
con alter	eval	0.010 0.023	[0.547 , 0.237]	-0.005 0.018	[0.531 , 0.417]	0.006 0.022	[0.434 , 0.231]	0.004 0.021	[0.574 , 0.213]	0.161	[0.641 , 0.43]	0.182	[0.492 , 0.292]	0.185	[0.543 , 0.391]	0.157	[0.64 , 0.314]
con ego	eval	0.009 0.019	[0.85 , 0.254]	0.005 0.016	[0.921 , 0.31]	-0.010 0.015	[0.726 , 0.475]	-0.005 0.015	[0.696 , 0.594]								
con similarity	**eval**	0.414 0.287	[0.925 , 0.058]	0.244 0.275	[0.969 , 0.082]	0.200 0.270	[0.896 , 0.206]	0.419 0.256	† [0.975 , 0.068]								
cov alter	eval	-0.036 0.040	[0.077 , 0.783]							-0.031 0.029	[0.28 , 0.753]						
cov ego	**eval**	0.011 0.030	[0.711 , 0.155]							-0.069 0.037	† [0.018 , 0.841]						
cov similarity	eval	0.053 0.124	[0.771 , 0.285]							0.098 0.127	[0.822 , 0.223]						
opv alter	eval			-0.001 0.039	[0.605 , 0.593]							-0.039 0.055	[0.019 , 0.342]				
opv ego	eval			-0.062 0.055	[0.008 , 0.65]							-0.046 0.053	[0.012 , 0.764]				
opv similarity	**eval**			0.032 0.102	[0.827 , 0.628]							0.209 0.111	† [0.974 , 0.046]				
sev alter	**eval**					-0.082 0.032	* [0.001 , 0.98]							-0.023 0.045	[0.021 , 0.216]		
sev ego	**eval**					0.042 0.026	[0.967 , 0.165]							-0.075 0.045	† [0.001 , 0.89]		
sev similarity	**eval**					0.251 0.147	† [0.942 , 0.012]							0.200 0.137	[0.9 , 0.059]		
stv alter	eval							0.018 0.045	[0.442 , 0.165]							0.047 0.036	[0.823 , 0.156]
stv ego	eval							-0.082 0.054	[0 , 0.801]							-0.013 0.034	[0.413 , 0.654]
stv similarity	**eval**							0.231 0.130	† [0.945 , 0.008]							0.408 0.112	*** [1 , 0]
behavior change:																	
1st period	**rate**	5.640 0.940	*** [1 , 0]	5.946 0.933	*** [1 , 0]	6.185 0.880	*** [1 , 0]	6.126 0.966	*** [1 , 0]	7.121 1.150	*** [1 , 0]	7.123 1.135	*** [1 , 0]	6.980 1.131	*** [1 , 0]	8.024 1.330	*** [1 , 0]
2nd period	**rate**	6.493 1.059	*** [1 , 0]	6.605 1.090	*** [1 , 0]	6.629 1.066	*** [1 , 0]	6.812 1.068	*** [1 , 0]	15.423 3.221	*** [1 , 0]	7.135 1.266	*** [1 , 0]	13.550 2.830	*** [1 , 0]	7.246 1.168	*** [1 , 0]
linear	**eval**	-0.060 0.019	*** [0.003 , 0.98]	-0.060 0.018	*** [0.002 , 0.981]	-0.060 0.020	*** [0.002 , 0.957]	-0.054 0.019	*** [0.007 , 0.969]	-0.078 0.024	*** [0 , 0.995]	-0.065 0.020	*** [0.002 , 0.988]	-0.060 0.018	*** [0.002 , 0.992]	-0.069 0.020	*** [0.001 , 0.999]
average similarity	**eval**	1.022 0.485	* [0.912 , 0.052]	1.325 0.446	*** [0.968 , 0.013]	0.933 0.526	† [0.862 , 0.056]	1.285 0.528	* [0.943 , 0.009]	1.685 0.799	* [0.995 , 0.003]	0.999 0.634	[0.991 , 0.037]	0.660 0.599	[0.983 , 0.097]	0.901 0.631	[0.978 , 0.03]
effect from sat	eval	-0.004 0.014	[0.403 , 0.867]	0.001 0.015	[0.518 , 0.775]	-0.003 0.015	[0.393 , 0.837]	0.001 0.015	[0.511 , 0.789]	0.010 0.013	[0.675 , 0.711]	0.013 0.013	[0.838 , 0.591]	0.009 0.013	[0.784 , 0.73]	0.006 0.012	[0.723 , 0.77]
I(avg sim*sat)	eval	-0.270 0.407	[0.591 , 0.782]	-0.304 0.362	[0.308 , 0.972]	-0.317 0.412	[0.446 , 0.858]	-0.563 0.463	[0.356 , 0.912]	-0.459 0.564	[0.096 , 0.855]	-0.381 0.559	[0.141 , 0.809]	0.073 0.462	[0.825 , 0.733]	-0.455 0.574	[0.073 , 0.82]
goodness of fit:		μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]
GOF (outdegree)		0.293 0.300	*** [30 , 22]	0.316 0.309	*** [30 , 22]	0.266 0.302	*** [27 , 18]	0.308 0.280	*** [27 , 22]	0.339 0.258	*** [26 , 23]	0.299 0.233	*** [29 , 27]	0.323 0.275	*** [29 , 26]	0.319 0.239	*** [29 , 26]
GOF (behavior)		0.359 0.292	*** [30 , 26]	0.371 0.289	*** [30 , 27]	0.331 0.290	*** [27 , 24]	0.389 0.278	*** [27 , 24]	0.377 0.352	*** [26 , 20]	0.369 0.332	*** [29 , 21]	0.368 0.333	*** [29 , 22]	0.358 0.330	*** [29 , 23]

$^{***}p < 0.01$, $^{**}0.01 < p < 0.05$, $^{*}0.05 < p < 0.1$, $^{\dagger}p < 0.1$

Table 6.45: **Effect of social norms for donations on life satisfaction**

		friendship networks								advice networks							
		opv		cov		stv		sev		opv		cov		stv		sev	
effect	function	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p
network selection:																	
1st period	**rate**	7.946 0.737	*** [1 , 0]	7.962 0.664	*** [1 , 0]	7.759 0.681	*** [1 , 0]	7.484 0.618	*** [1 , 0]	6.998 0.658	*** [1 , 0]	6.836 0.638	*** [1 , 0]	7.150 0.661	*** [1 , 0]	6.456 0.496	*** [1 , 0]
2nd period	**rate**	6.624 0.430	*** [1 , 0]	7.042 0.451	*** [1 , 0]	7.052 0.454	*** [1 , 0]	6.675 0.463	*** [1 , 0]	10.033 1.122	*** [1 , 0]	9.699 1.099	*** [1 , 0]	9.431 0.997	*** [1 , 0]	8.366 0.816	*** [1 , 0]
density	**eval**	-2.123 0.095	*** [0 , 1]	-2.050 0.089	*** [0 , 1]	-2.117 0.097	*** [0 , 1]	-2.051 0.104	*** [0 , 1]	-1.448 0.071	*** [0 , 1]	-1.534 0.071	*** [0 , 1]	-1.519 0.071	*** [0 , 1]	-1.463 0.078	*** [0 , 1]
reciprocity	**eval**	1.078 0.096	*** [1 , 0]	1.151 0.093	*** [1 , 0]	1.126 0.106	*** [1 , 0]	1.150 0.102	*** [1 , 0]	1.086 0.098	*** [1 , 0]	1.082 0.103	*** [1 , 0]	1.066 0.094	*** [1 , 0]	1.180 0.099	*** [1 , 0]
transitivity	**eval**	1.295 0.060	*** [1 , 0]	1.316 0.060	*** [1 , 0]	1.314 0.065	*** [1 , 0]	1.327 0.060	*** [1 , 0]	1.607 0.104	*** [1 , 0]	1.577 0.109	*** [1 , 0]	1.602 0.094	*** [1 , 0]	1.601 0.103	*** [1 , 0]
cyclicality	**eval**									-0.383 0.072	*** [0 , 0.999]	-0.377 0.084	*** [0 , 1]	-0.424 0.069	*** [0 , 1]	-0.418 0.083	*** [0 , 1]
popularity	**eval**	-0.080 0.014	*** [0 , 1]	-0.085 0.015	*** [0 , 1]	-0.081 0.015	*** [0 , 1]	-0.084 0.014	*** [0 , 1]	-0.115 0.023	*** [0 , 1]	-0.098 0.023	*** [0 , 1]	-0.107 0.022	*** [0 , 1]	-0.123 0.022	*** [0 , 1]
same age	eval	0.009 0.044	[0.671 , 0.42]	0.018 0.041	[0.844 , 0.494]	0.013 0.047	[0.612 , 0.357]	0.026 0.044	[0.753 , 0.369]								
same gender	**eval**	0.377 0.061	*** [1 , 0]	0.363 0.050	*** [1 , 0]	0.351 0.054	*** [1 , 0]	0.388 0.062	*** [1 , 0]								
scp alter	**eval**									0.071 0.044	[0.692 , 0.035]	0.094 0.042	* [0.816 , 0.011]	0.078 0.042	† [0.79 , 0.028]	0.126 0.047	** [0.84 , 0.004]
scp ego	**eval**									-0.090 0.057	[0.006 , 0.919]	-0.096 0.059	[0.004 , 0.929]	-0.106 0.053	* [0.002 , 0.984]	-0.130 0.053	* [0.001 , 0.993]
scp similarity	eval									0.018 0.125	[0.627 , 0.277]	-0.044 0.130	[0.699 , 0.473]	-0.051 0.127	[0.5 , 0.359]	0.017 0.132	[0.792 , 0.249]
rsp alter	**eval**									0.092 0.044	* [0.954 , 0.007]	0.020 0.041	[0.368 , 0.135]	0.046 0.040	[0.824 , 0.076]	0.042 0.054	[0.327 , 0.06]
rsp ego	eval									0.064 0.076	[0.339 , 0.002]	0.020 0.070	[0.185 , 0.027]	0.012 0.078	[0.065 , 0.016]	0.050 0.091	[0.215 , 0.005]
rsp similarity	eval									-0.004 0.196	[0.191 , 0.258]	0.098 0.177	[0.435 , 0.11]	0.107 0.179	[0.531 , 0.111]	0.131 0.176	[0.613 , 0.103]
sri alter	eval									0.043 0.044	[0.779 , 0.048]	0.002 0.049	[0.282 , 0.129]	-0.011 0.041	[0.366 , 0.318]	0.041 0.040	[0.829 , 0.032]
sri ego	eval									-0.011 0.046	[0.321 , 0.526]	-0.007 0.041	[0.657 , 0.38]	-0.003 0.059	[0.129 , 0.244]	0.008 0.044	[0.542 , 0.306]
sri similarity	eval									0.135 0.117	[0.941 , 0.224]	0.136 0.120	[0.902 , 0.075]	0.116 0.118	[0.96 , 0.183]	0.161 0.116	[0.98 , 0.057]
eri alter	**eval**									-0.055 0.040	[0.059 , 0.903]	-0.081 0.034	* [0.01 , 0.973]	-0.070 0.037	† [0.047 , 0.936]	-0.108 0.036	*** [0.001 , 0.99]
eri ego	**eval**									0.132 0.055	* [0.918 , 0.001]	0.135 0.068	* [0.718 , 0]	0.121 0.071	† [0.752 , 0]	0.146 0.077	† [0.63 , 0]
eri similarity	**eval**									0.194 0.125	[0.893 , 0.066]	0.270 0.113	* [0.97 , 0.03]	0.200 0.115	† [0.952 , 0.056]	0.139 0.117	[0.843 , 0.103]
giv alter	eval	0.009 0.032	[0.639 , 0.486]	0.001 0.030	[0.601 , 0.684]	0.003 0.032	[0.588 , 0.617]	0.012 0.032	[0.633 , 0.55]								
giv ego	eval	0.010 0.031	[0.702 , 0.243]	-0.003 0.030	[0.62 , 0.4]	0.012 0.032	[0.801 , 0.223]	0.002 0.031	[0.635 , 0.32]								
giv similarity	eval	0.360 0.308	[0.748 , 0.19]	0.247 0.296	[0.831 , 0.348]	0.341 0.302	[0.816 , 0.245]	0.382 0.313	[0.874 , 0.214]								
opv alter	**eval**	0.031 0.035	[0.749 , 0.077]							-0.104 0.047	* [0 , 0.922]						
opv ego	eval	-0.030 0.045	[0.026 , 0.246]							0.006 0.041	[0.037 , 0.335]						
opv similarity	**eval**	0.028 0.097	[0.451 , 0.382]							0.337 0.136	* [0.963 , 0.001]						
cov alter	eval			-0.023 0.024	[0.143 , 0.702]							-0.002 0.024	[0.513 , 0.343]				
cov ego	**eval**			0.034 0.031	[0.607 , 0.018]							-0.088 0.037	* [0 , 0.981]				
cov similarity	**eval**			0.161 0.095	† [0.799 , 0.125]							-0.102 0.133	[0.081 , 0.669]				
stv alter	eval					0.015 0.033	[0.495 , 0.315]							0.031 0.034	[0.723 , 0.172]		
stv ego	**eval**					-0.073 0.035	* [0.003 , 0.935]							-0.067 0.035	† [0.016 , 0.977]		
stv similarity	**eval**					0.247 0.131	† [0.891 , 0.003]							0.302 0.149	* [0.906 , 0]		
sev alter	eval							-0.006 0.029	[0.177 , 0.445]							-0.033 0.034	[0.045 , 0.615]
sev ego	eval							0.036 0.022	[0.637 , 0.061]							-0.028 0.044	[0.023 , 0.375]
sev similarity	**eval**							0.318 0.122	** [0.99 , 0.001]							0.375 0.120	*** [0.999 , 0.004]
behavior change:																	
1st period	**rate**	1.659 0.203	*** [1 , 0]	1.659 0.183	*** [1 , 0]	1.760 0.208	*** [1 , 0]	1.674 0.201	*** [1 , 0]	1.892 0.253	*** [1 , 0]	1.795 0.255	*** [1 , 0]	1.803 0.234	*** [1 , 0]	1.903 0.277	*** [1 , 0]
2nd period	**rate**	6.276 2.204	*** [1 , 0]	2.543 0.483	*** [1 , 0]	2.731 0.540	*** [1 , 0]	2.408 0.474	*** [1 , 0]	2.678 0.627	*** [1 , 0]	6.664 1.775	*** [1 , 0]	2.804 0.589	*** [1 , 0]	2.927 0.613	*** [1 , 0]
linear	**eval**	-0.361 0.056	*** [0 , 1]	-0.385 0.055	*** [0 , 1]	-0.381 0.063	*** [0 , 1]	-0.359 0.055	*** [0 , 1]	-0.308 0.069	*** [0 , 1]	-0.230 0.050	*** [0 , 1]	-0.219 0.052	*** [0 , 1]	-0.235 0.056	*** [0 , 1]
average similarity	eval	-0.487 0.869	-0.743 [0.566 , 0.925]	0.819	-0.701 [0.338 , 0.972]	0.921	-0.395 [0.499 , 0.928]	0.801	0.763 [0.697 , 0.887]	0.116 1.501	0.533 [0.566 , 0.887]	1.214	0.763 [0.673 , 0.812]	1.382	0.702 [0.735 , 0.69]	1.429	0.702 [0.71 , 0.775]
effect from sat	eval	0.009 0.034	0.020 [0.885 , 0.727]	0.033	0.043 [0.948 , 0.711]	0.048	0.026 [0.926 , 0.65]	0.033	0.013 [0.892 , 0.76]	0.024 0.047	0.015 [0.916 , 0.666]	0.037	0.085 [0.925 , 0.611]	0.037	0.042 [0.907 , 0.688]	0.037	0.010 [0.911 , 0.644]
I(avg sim*sat)	eval	-0.239 0.570	0.160 [0.723 , 0.738]	0.566	0.020 [0.902 , 0.617]	0.907	0.042 [0.812 , 0.677]	0.575	-0.231 [0.649 , 0.846]	0.180 0.992	0.085 [0.72 , 0.888]	0.796	0.042 [0.74 , 0.893]	0.897	0.042 [0.707 , 0.893]	0.925	0.236 [0.751 , 0.842]
goodness of fit:		μ_p σ_p [converge / fit]	χ^2 test	μ_p σ_p [converge / fit]	χ^2 test	μ_p σ_p [converge / fit]	χ^2 test	μ_p σ_p [converge / fit]	χ^2 test	μ_p σ_p [converge / fit]	χ^2 test	μ_p σ_p [converge / fit]	χ^2 test	μ_p σ_p [converge / fit]	χ^2 test	μ_p σ_p [converge / fit]	χ^2 test
GOF (outdegree)		0.365 0.317	*** [35 , 27]	0.357 0.315	*** [35 , 29]	0.328 0.283	*** [34 , 26]	0.361 0.319	*** [37 , 28]	0.396 0.274	*** [21 , 20]	0.414 0.296	*** [24 , 22]	0.398 0.257	*** [23 , 23]	0.448 0.298	*** [22 , 21]
GOF (behavior)		0.360 0.256	*** [35 , 32]	0.353 0.255	*** [35 , 32]	0.346 0.248	*** [34 , 31]	0.357 0.252	*** [37 , 33]	0.322 0.259	*** [21 , 19]	0.302 0.255	*** [24 , 22]	0.339 0.274	*** [23 , 21]	0.283 0.252	*** [22 , 19]

$^{***}p < 0.01$, $^{**}0.01 < p < 0.05$, $^{*}0.05 < p < 0.1$, $^{\dagger}p < 0.1$

Table 6.46: **Social norms for saving in co-evolution with friendship and advice networks**

		friendship networks								advice networks							
		stv		sev		cov		opv		stv		sev		cov		opv	
effect	function	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p
primary network selection:																	
1st period	**rate**	7.946 0.949	*** [1 , 0]	8.192 0.965	*** [1 , 0]	7.946 0.838	*** [1 , 0]	7.442 0.770	*** [1 , 0]	6.555 0.668	*** [1 , 0]	6.154 0.554	*** [1 , 0]	7.448 0.905	*** [1 , 0]	7.152 0.843	*** [1 , 0]
2nd period	**rate**	7.529 0.662	*** [1 , 0]	7.541 0.659	*** [1 , 0]	7.686 0.632	*** [1 , 0]	7.171 0.608	*** [1 , 0]	8.050 1.091	*** [1 , 0]	8.912 1.159	*** [1 , 0]	8.448 1.054	*** [1 , 0]	8.794 1.333	*** [1 , 0]
density	**eval**	-2.207 0.138	*** [0 , 1]	-2.170 0.142	*** [0 , 1]	-2.088 0.154	*** [0 , 1]	-2.133 0.164	*** [0 , 1]	-2.204 0.130	*** [0 , 1]	-2.243 0.149	*** [0 , 1]	-2.371 0.136	*** [0 , 1]	-2.398 0.145	*** [0 , 1]
reciprocity	**eval**	1.148 0.087	*** [1 , 0]	1.181 0.086	*** [1 , 0]	1.168 0.084	*** [1 , 0]	1.186 0.087	*** [1 , 0]	0.880 0.105	*** [1 , 0]	0.910 0.113	*** [1 , 0]	0.908 0.108	*** [1 , 0]	0.868 0.110	*** [1 , 0]
transitivity	**eval**	1.545 0.085	*** [1 , 0]	1.548 0.085	*** [1 , 0]	1.565 0.081	*** [1 , 0]	1.529 0.085	*** [1 , 0]	1.569 0.107	*** [1 , 0]	1.694 0.118	*** [1 , 0]	1.591 0.108	*** [1 , 0]	1.566 0.122	*** [1 , 0]
cyclicality	**eval**	-0.169 0.071	* [0.023 , 0.859]	-0.222 0.070	*** [0.008 , 0.99]	-0.186 0.069	** [0.009 , 0.897]	-0.171 0.073	* [0.027 , 0.858]	-0.472 0.079	*** [0 , 1]	-0.509 0.079	*** [0 , 1]	-0.463 0.079	*** [0 , 1]	-0.446 0.088	*** [0 , 1]
popularity	**eval**	-0.116 0.028	*** [0 , 1]	-0.109 0.026	*** [0 , 1]	-0.116 0.025	*** [0 , 1]	-0.104 0.024	*** [0 , 1]	-0.106 0.020	*** [0 , 1]	-0.101 0.023	*** [0 , 1]	-0.095 0.021	*** [0 , 1]	-0.113 0.023	*** [0 , 1]
same age	**eval**	-0.002 0.083	 [0.188 , 0.423]	0.028 0.073	 [0.521 , 0.403]	-0.047 0.090	 [0.025 , 0.527]	-0.078 0.095	 [0.013 , 0.71]	-0.103 0.059	. [0.024 , 0.984]	-0.048 0.071	 [0.2 , 0.906]	-0.054 0.066	 [0.071 , 0.853]	-0.069 0.062	 [0.122 , 0.892]
same gender	**eval**	0.325 0.057	*** [1 , 0]	0.305 0.059	*** [1 , 0]	0.304 0.057	*** [1 , 0]	0.307 0.057	*** [1 , 0]	0.382 0.054	*** [1 , 0]	0.394 0.057	*** [1 , 0]	0.406 0.054	*** [1 , 0]	0.415 0.063	*** [1 , 0]
scp similarity	eval	-0.074 0.140	 [0.25 , 0.776]	-0.077 0.147	 [0.273 , 0.753]	-0.187 0.147	 [0.084 , 0.874]	-0.199 0.158	 [0.129 , 0.881]	0.029 0.144	 [0.631 , 0.366]	-0.018 0.150	 [0.475 , 0.408]	-0.041 0.180	 [0.402 , 0.274]	0.030 0.153	 [0.73 , 0.192]
rsp similarity	eval	0.096 0.162	 [0.901 , 0.271]	0.082 0.161	 [0.866 , 0.268]	0.053 0.145	 [0.878 , 0.281]	0.074 0.163	 [0.862 , 0.276]	-0.007 0.140	 [0.637 , 0.645]	0.035 0.148	 [0.747 , 0.562]	0.007 0.141	 [0.452 , 0.548]	0.011 0.157	 [0.439 , 0.545]
sri similarity	**eval**	0.054 0.152	 [0.482 , 0.486]	0.045 0.140	 [0.502 , 0.549]	0.145 0.140	 [0.739 , 0.258]	0.221 0.153	 [0.815 , 0.186]	0.307 0.133	* [0.986 , 0.053]	0.219 0.146	 [0.936 , 0.184]	0.267 0.139	† [0.973 , 0.038]	0.223 0.148	 [0.946 , 0.103]
eri similarity	**eval**	0.304 0.136	* [0.971 , 0.03]	0.266 0.136	† [0.933 , 0.041]	0.343 0.130	** [0.987 , 0.01]	0.324 0.136	* [0.957 , 0.031]	-0.108 0.161	 [0.059 , 0.729]	-0.290 0.193	 [0.004 , 0.916]	-0.208 0.139	 [0.022 , 0.964]	-0.131 0.153	 [0.151 , 0.863]
sav similarity	eval	0.373 0.273	 [0.911 , 0.051]	0.392 0.271	 [0.947 , 0.069]	0.237 0.313	 [0.561 , 0.109]	0.216 0.327	 [0.537 , 0.111]	0.153 0.327	 [0.699 , 0.742]	0.295 0.319	 [0.799 , 0.575]	0.158 0.280	 [0.807 , 0.532]	0.091 0.332	 [0.597 , 0.659]
stv similarity	**eval**	0.319 0.162	* [0.971 , 0.006]							0.277 0.149	† [0.91 , 0.013]						
sev similarity	eval			0.147 0.152	 [0.819 , 0.076]							0.159 0.145	 [0.81 , 0.161]				
cov similarity	eval					0.030 0.122	 [0.489 , 0.57]							-0.021 0.125	 [0.513 , 0.562]		
opv similarity	eval							-0.043 0.118	 [0.6 , 0.563]							0.155 0.160	 [0.737 , 0.137]
sat similarity	**eval**	0.201 0.175	 [0.641 , 0.056]	0.308 0.164	† [0.835 , 0.03]	0.237 0.158	 [0.787 , 0.052]	0.235 0.165	 [0.777 , 0.048]	0.068 0.125	 [0.654 , 0.367]	0.135 0.140	 [0.783 , 0.146]	0.007 0.122	 [0.433 , 0.502]	0.034 0.129	 [0.741 , 0.443]

		advice networks								friendship networks							
		stv		sev		cov		opv		stv		sev		cov		opv	
effect	function	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p
secondary network selection:																	
1st period	**rate**	3.731 0.542	*** [1 , 0]	4.117 0.576	*** [1 , 0]	3.756 0.482	*** [1 , 0]	3.883 0.545	*** [1 , 0]	8.457 0.625	*** [1 , 0]	8.604 0.681	*** [1 , 0]	9.346 0.645	*** [1 , 0]	8.827 0.679	*** [1 , 0]
2nd period	**rate**	3.887 0.430	*** [1 , 0]	7.706 2.531	*** [1 , 0]	4.446 0.526	*** [1 , 0]	3.899 0.375	*** [1 , 0]	8.490 0.558	*** [1 , 0]	8.905 0.568	*** [1 , 0]	9.346 0.630	*** [1 , 0]	8.695 0.511	*** [1 , 0]
density	**eval**	-1.532 0.108	*** [0 , 1]	-1.515 0.106	*** [0 , 1]	-1.466 0.106	*** [0 , 1]	-1.512 0.107	*** [0 , 1]	-0.413 0.109	*** [0 , 0.544]	-0.400 0.117	*** [0 , 0.382]	-0.407 0.113	*** [0 , 0.502]	-0.400 0.127	*** [0 , 0.312]
reciprocity	**eval**	0.777 0.174	*** [1 , 0]	0.748 0.158	*** [1 , 0]	0.721 0.152	*** [1 , 0]	0.827 0.151	*** [1 , 0]	0.914 0.102	*** [1 , 0]	0.892 0.111	*** [1 , 0]	0.928 0.119	*** [1 , 0]	0.951 0.133	*** [1 , 0]
transformation to	**eval**	0.427 0.259	† [0.991 , 0.023]	0.476 0.256	† [0.992 , 0.014]	0.470 0.230	* [0.997 , 0.007]	0.367 0.218	† [0.994 , 0.018]	0.964 0.131	*** [1 , 0]	0.884 0.153	*** [1 , 0]	0.934 0.165	*** [1 , 0]	1.045 0.159	*** [1 , 0]

		friendship networks								advice networks							
		stv		sev		cov		opv		stv		sev		cov		opv	
effect	function	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p
behavior change:																	
1st period	**rate**	7.902 0.956	*** [1 , 0]	7.546 0.928	*** [1 , 0]	7.682 0.904	*** [1 , 0]	7.905 0.918	*** [1 , 0]	7.817 0.955	*** [1 , 0]	8.069 1.085	*** [1 , 0]	7.767 0.998	*** [1 , 0]	7.984 1.067	*** [1 , 0]
2nd period	**rate**	27.377 8.333	*** [1 , 0]	18.270 4.154	*** [1 , 0]	24.809 8.082	*** [1 , 0]	26.162 7.781	*** [1 , 0]	20.553 6.083	*** [1 , 0]	20.616 6.526	*** [1 , 0]	8.893 1.465	*** [1 , 0]	8.806 1.425	*** [1 , 0]
linear	**eval**	-0.071 0.017	*** [0 , 1]	-0.076 0.017	*** [0 , 1]	-0.071 0.016	*** [0 , 1]	-0.070 0.016	*** [0 , 1]	-0.076 0.015	*** [0 , 1]	-0.077 0.016	*** [0 , 1]	-0.081 0.019	*** [0 , 1]	-0.061 0.017	*** [0 , 1]
average similarity	**eval**	1.298 0.480	** [0.99 , 0.001]	1.396 0.527	** [0.99 , 0.001]	1.435 0.427	*** [0.998 , 0.001]	1.178 0.411	*** [0.996 , 0.002]	1.467 0.482	*** [1 , 0.007]	1.658 0.541	*** [0.999 , 0.007]	1.930 0.600	*** [0.993 , 0.007]	1.777 0.535	*** [1 , 0.002]
effect from sat	**eval**	-0.016 0.010	† [0.062 , 0.927]	-0.018 0.009	† [0.048 , 0.973]	-0.018 0.010	† [0.035 , 0.945]	-0.018 0.010	† [0.028 , 0.919]	-0.010 0.009	 [0.212 , 0.905]	-0.011 0.010	 [0.368 , 0.923]	-0.010 0.010	 [0.219 , 0.844]	-0.006 0.010	 [0.359 , 0.76]
goodness of fit:		μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]
GOF (outdegree)		0.301 0.287	*** [38 , 27]	0.317 0.295	*** [37 , 27]	0.314 0.292	*** [37 , 29]	0.299 0.287	*** [38 , 29]	0.276 0.250	*** [29 , 26]	0.323 0.280	*** [31 , 28]	0.292 0.251	*** [32 , 28]	0.274 0.242	*** [33 , 28]
GOF (behavior)		0.286 0.302	*** [38 , 25]	0.299 0.312	*** [37 , 23]	0.298 0.305	*** [37 , 26]	0.305 0.304	*** [38 , 25]	0.304 0.297	*** [29 , 22]	0.324 0.304	*** [31 , 23]	0.298 0.297	*** [32 , 23]	0.287 0.295	*** [33 , 24]

$^{***}p < 0.01$, $^{**}0.01 < p < 0.05$, $^{*}0.05 < p < 0.1$, $^{\dagger}p < 0.1$

Table 6.47: **Social norms for spending in co-evolution with friendship and advice networks**

		friendship networks								advice networks							
		cov		opv		sev		stv		cov		opv		sev		stv	
effect	function	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p
primary network selection:																	
		8.177	***	8.147	***	8.620	***	8.298	***	5.958	***	5.683	***	6.239	***	6.197	***
1st period	**rate**	0.799	[1 , 0]	0.775	[1 , 0]	0.677	[1 , 0]	0.887	[1 , 0]	0.558	[1 , 0]	0.523	[1 , 0]	0.597	[1 , 0]	0.564	[1 , 0]
		7.624	***	7.537	***	8.625	***	8.033	***	7.250	***	7.199	***	7.276	***	8.537	***
2nd period	**rate**	0.622	[1 , 0]	0.615	[1 , 0]	0.709	[1 , 0]	0.601	[1 , 0]	0.906	[1 , 0]	0.924	[1 , 0]	0.973	[1 , 0]	1.155	[1 , 0]
		-2.041	***	-2.039	***	-2.172	***	-1.979	***	-2.249	***	-2.382	***	-2.382	***	-2.202	***
density	**eval**	0.166	[0 , 1]	0.163	[0 , 1]	0.149	[0 , 1]	0.152	[0 , 1]	0.167	[0 , 1]	0.165	[0 , 1]	0.173	[0 , 1]	0.171	[0 , 1]
		1.387	***	1.396	***	1.253	***	1.398	***	0.988	***	0.993	***	1.008	***	1.011	***
reciprocity	**eval**	0.107	[1 , 0]	0.103	[1 , 0]	0.098	[1 , 0]	0.091	[1 , 0]	0.122	[1 , 0]	0.121	[1 , 0]	0.129	[1 , 0]	0.119	[1 , 0]
		1.471	***	1.462	***	1.524	***	1.490	***	1.731	***	1.744	***	1.769	***	1.699	***
transitivity	**eval**	0.079	[1 , 0]	0.082	[1 , 0]	0.074	[1 , 0]	0.091	[1 , 0]	0.124	[1 , 0]	0.130	[1 , 0]	0.145	[1 , 0]	0.130	[1 , 0]
		-0.186	**	-0.208	***	-0.253	***	-0.195	**	-0.495	***	-0.445	***	-0.473	***	-0.473	***
cyclicality	**eval**	0.071	[0.007 , 0.926]	0.070	[0.004 , 0.955]	0.059	[0 , 0.998]	0.071	[0.009 , 0.943]	0.083	[0 , 1]	0.089	[0 , 1]	0.090	[0 , 1]	0.092	[0 , 1]
		-0.124	***	-0.116	***	-0.118	***	-0.142	***	-0.100	***	-0.107	***	-0.123	***	-0.114	***
popularity	**eval**	0.019	[0 , 1]	0.018	[0 , 1]	0.019	[0 , 1]	0.024	[0 , 1]	0.028	[0 , 1]	0.030	[0 , 1]	0.034	[0 , 1]	0.030	[0 , 1]
		0.028		0.022		0.063		0.005		-0.010		-0.047		-0.031		-0.093	
same age	**eval**	0.069	[0.109 , 0.249]	0.065	[0.121 , 0.302]	0.046	[0.406 , 0.097]	0.067	[0.119 , 0.469]	0.078	[0.371 , 0.444]	0.068	[0.476 , 0.864]	0.072	[0.616 , 0.814]	0.065	[0.228 , 0.974]
		0.374	***	0.351	***	0.363	***	0.320	***	0.378	***	0.392	***	0.386	***	0.417	***
same gender	**eval**	0.055	[1 , 0]	0.057	[1 , 0]	0.049	[1 , 0]	0.053	[1 , 0]	0.062	[1 , 0]	0.063	[1 , 0]	0.069	[1 , 0]	0.065	[1 , 0]
		-0.137		-0.123		-0.135		-0.123		-0.047		-0.121		-0.140		-0.090	
scp similarity	eval	0.136	[0.248 , 0.796]	0.132	[0.298 , 0.803]	0.108	[0.386 , 0.921]	0.138	[0.317 , 0.806]	0.208	[0.172 , 0.422]	0.223	[0.135 , 0.31]	0.233	[0.076 , 0.432]	0.211	[0.09 , 0.597]
		0.079		0.151		0.054		-0.007		0.074		-0.133		-0.146		-0.068	
rsp similarity	eval	0.198	[0.432 , 0.082]	0.186	[0.685 , 0.077]	0.148	[0.52 , 0.106]	0.179	[0.474 , 0.273]	0.193	[0.436 , 0.239]	0.182	[0.113 , 0.791]	0.174	[0.126 , 0.798]	0.173	[0.305 , 0.644]
		0.155		0.168		0.106		0.150		0.372	*	0.466	***	0.482	***	0.354	*
sri similarity	**eval**	0.132	[0.84 , 0.343]	0.133	[0.827 , 0.311]	0.103	[0.877 , 0.442]	0.136	[0.782 , 0.34]	0.164	[0.972 , 0.007]	0.158	[0.994 , 0.004]	0.165	[0.99 , 0.003]	0.158	[0.979 , 0.011]
		0.444	***	0.396	***	0.309	**	0.312	*	-0.181		-0.207		-0.241		-0.209	
eri similarity	**eval**	0.131	[0.999 , 0.003]	0.132	[0.994 , 0.007]	0.115	[0.998 , 0.004]	0.141	[0.995 , 0.045]	0.165	[0.114 , 0.731]	0.174	[0.095 , 0.735]	0.176	[0.081 , 0.865]	0.176	[0.103 , 0.755]
		0.126		0.092		0.180		0.170		0.165		0.390		0.295		0.282	
con similarity	eval	0.251	[0.816 , 0.28]	0.237	[0.788 , 0.309]	0.230	[0.915 , 0.235]	0.276	[0.819 , 0.216]	0.332	[0.546 , 0.699]	0.366	[0.641 , 0.498]	0.373	[0.493 , 0.631]	0.345	[0.593 , 0.676]
		0.148								-0.080							
stv similarity	eval	0.120	[0.805 , 0.105]							0.178	[0.163 , 0.4]						
				0.046								0.173					
sev similarity	eval			0.106	[0.853 , 0.517]							0.130	[0.842 , 0.21]				
						0.289	*							0.241			
cov similarity	**eval**					0.121	[0.989 , 0.001]							0.160	[0.905 , 0.121]		
								0.219	†							0.411	***
opv similarity	**eval**							0.124	[0.987 , 0.059]							0.138	[0.995 , 0.007]
		0.284	*	0.267	*	0.319	**	0.271	*	0.137		0.221		0.233		0.216	
sat similarity	**eval**	0.121	[0.987 , 0.012]	0.124	[0.985 , 0.022]	0.121	[0.978 , 0.001]	0.127	[0.979 , 0.021]	0.135	[0.781 , 0.216]	0.141	[0.935 , 0.051]	0.148	[0.924 , 0.057]	0.133	[0.91 , 0.069]

		advice networks								friendship networks							
		cov		opv		sev		stv		cov		opv		sev		stv	
effect	function	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p
secondary network selection:																	
		3.432	***	3.497	***	4.449	***	3.582	***	9.934	***	9.188	***	9.803	***	9.469	***
1st period	**rate**	0.378	[1 , 0]	0.371	[1 , 0]	0.465	[1 , 0]	0.390	[1 , 0]	0.811	[1 , 0]	0.732	[1 , 0]	0.820	[1 , 0]	0.667	[1 , 0]
		8.429	**	9.181	*	4.713	***	10.028	*	10.180	***	9.585	***	9.782	***	10.039	***
2nd period	**rate**	3.232	[1 , 0]	4.016	[1 , 0]	0.532	[1 , 0]	4.207	[1 , 0]	0.664	[1 , 0]	0.590	[1 , 0]	0.577	[1 , 0]	0.476	[1 , 0]
		-1.662	***	-1.665	***	-1.567	***	-1.625	***	-0.465	***	-0.547	***	-0.457	***	-0.471	***
density	**eval**	0.089	[0 , 1]	0.083	[0 , 1]	0.074	[0 , 1]	0.102	[0 , 1]	0.091	[0 , 1]	0.077	[0 , 1]	0.078	[0 , 1]	0.078	[0 , 1]
		1.129	***	1.145	***	0.996	***	1.020	***	0.982	***	1.087	***	1.044	***	0.987	***
reciprocity	**eval**	0.128	[1 , 0]	0.121	[1 , 0]	0.124	[1 , 0]	0.159	[1 , 0]	0.106	[1 , 0]	0.093	[1 , 0]	0.100	[1 , 0]	0.095	[1 , 0]
		0.279		0.224		0.506	**	0.330		0.864	***	1.020	***	1.013	***	0.866	***
transformation to	**eval**	0.208	[0.987 , 0.028]	0.190	[0.992 , 0.054]	0.185	[1 , 0.002]	0.226	[0.975 , 0.029]	0.189	[1 , 0]	0.194	[1 , 0]	0.209	[1 , 0]	0.198	[1 , 0]

		friendship networks								advice networks							
		cov		opv		sev		stv		cov		opv		sev		stv	
effect	function	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p
behavior change:																	
		7.662	***	7.922	***	8.695	***	7.941	***	8.524	***	7.585	***	8.429	***	7.922	***
1st period	**rate**	1.313	[1 , 0]	1.331	[1 , 0]	1.140	[1 , 0]	1.397	[1 , 0]	1.496	[1 , 0]	1.319	[1 , 0]	1.609	[1 , 0]	1.522	[1 , 0]
		21.093	***	20.514	***	9.334	***	8.278	***	8.145	***	8.337	***	7.965	***	7.000	***
2nd period	**rate**	6.417	[1 , 0]	5.591	[1 , 0]	1.547	[1 , 0]	1.350	[1 , 0]	1.395	[1 , 0]	1.580	[1 , 0]	1.555	[1 , 0]	1.193	[1 , 0]
		-0.064	***	-0.073	***	-0.050	***	-0.058	***	-0.068	***	-0.073	***	-0.066	***	-0.053	***
linear	**eval**	0.018	[0 , 0.999]	0.018	[0 , 1]	0.013	[0 , 1]	0.018	[0.001 , 0.998]	0.018	[0 , 0.999]	0.018	[0 , 0.998]	0.018	[0.001 , 0.997]	0.017	[0.002 , 0.982]
		1.073	*	0.999	*	1.540	***	1.326	**	1.984	***	1.740	*	1.723	*	2.027	***
average similarity	**eval**	0.495	[0.887 , 0.003]	0.483	[0.906 , 0.007]	0.443	[0.997 , 0]	0.485	[0.962 , 0.002]	0.704	[0.992 , 0.001]	0.713	[0.985 , 0]	0.750	[0.985 , 0]	0.717	[0.997 , 0]
		0.002		-0.002		0.004		0.005		-0.010		-0.011		-0.008		-0.014	†
effect from sat	**eval**	0.010	[0.407 , 0.529]	0.010	[0.337 , 0.723]	0.009	[0.477 , 0.54]	0.010	[0.476 , 0.464]	0.008	[0.196 , 0.965]	0.008	[0.128 , 0.973]	0.008	[0.136 , 0.92]	0.008	[0.076 , 0.987]
goodness of fit:		μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]
		0.319	***	0.276	***	0.312	***	0.299	***	0.298	***	0.284	***	0.273	***	0.304	***
GOF (outdegree)		0.312	[31 , 22]	0.292	[33 , 21]	0.314	[32 , 23]	0.300	[32 , 23]	0.244	[31 , 28]	0.226	[31 , 27]	0.243	[32 , 27]	0.251	[31 , 27]
		0.383	***	0.340	***	0.369	***	0.366	***	0.345	***	0.360	***	0.340	***	0.314	***
GOF (behavior)		0.289	[31 , 28]	0.290	[33 , 27]	0.297	[32 , 27]	0.292	[32 , 26]	0.313	[31 , 23]	0.311	[31 , 24]	0.305	[32 , 26]	0.301	[31 , 23]

$^{***}p < 0.01$, $^{**}0.01 < p < 0.05$, $^{*}0.05 < p < 0.1$, $^{\dagger}p < 0.1$

Table 6.48: **Social norms for donations in co-evolution with friendship and advice networks**

		friendship networks								advice networks							
		opv		cov		stv		sev		opv		cov		stv		sev	
effect	function	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p
primary network selection:																	
1st period	**rate**	8.345 1.062	*** [1 , 0]	8.690 1.057	*** [1 , 0]	8.289 1.115	*** [1 , 0]	8.418 1.076	*** [1 , 0]	6.941 0.444	*** [1 , 0]	7.411 0.608	*** [1 , 0]	7.561 0.640	*** [1 , 0]	7.124 0.558	*** [1 , 0]
2nd period	**rate**	7.249 0.618	*** [1 , 0]	7.486 0.585	*** [1 , 0]	7.115 0.571	*** [1 , 0]	7.454 0.605	*** [1 , 0]	7.494 0.880	*** [1 , 0]	8.903 1.155	*** [1 , 0]	8.087 1.038	*** [1 , 0]	7.500 0.945	*** [1 , 0]
density	**eval**	-2.107 0.125	*** [0 , 1]	-2.129 0.118	*** [0 , 1]	-2.093 0.130	*** [0 , 1]	-2.191 0.133	*** [0 , 1]	-2.259 0.129	*** [0 , 1]	-2.215 0.117	*** [0 , 1]	-2.124 0.125	*** [0 , 1]	-2.206 0.130	*** [0 , 1]
reciprocity	**eval**	1.304 0.101	*** [1 , 0]	1.261 0.104	*** [1 , 0]	1.231 0.098	*** [1 , 0]	1.237 0.096	*** [1 , 0]	0.956 0.109	*** [1 , 0]	0.834 0.097	*** [1 , 0]	0.835 0.101	*** [1 , 0]	0.870 0.103	*** [1 , 0]
transitivity	**eval**	1.413 0.079	*** [1 , 0]	1.445 0.082	*** [1 , 0]	1.425 0.083	*** [1 , 0]	1.431 0.086	*** [1 , 0]	1.578 0.110	*** [1 , 0]	1.601 0.096	*** [1 , 0]	1.592 0.103	*** [1 , 0]	1.624 0.118	*** [1 , 0]
cyclicality	**eval**	-0.265 0.070	*** [0.002 , 1]	-0.254 0.065	*** [0.001 , 1]	-0.292 0.071	*** [0 , 1]	-0.308 0.069	*** [0 , 1]	-0.515 0.072	*** [0 , 1]	-0.425 0.074	*** [0 , 1]	-0.420 0.076	*** [0 , 1]	-0.447 0.076	*** [0 , 1]
popularity	**eval**	-0.087 0.018	*** [0 , 1]	-0.089 0.017	*** [0 , 1]	-0.069 0.017	*** [0 , 1]	-0.074 0.017	*** [0 , 1]	-0.085 0.024	*** [0 , 1]	-0.096 0.018	*** [0 , 1]	-0.100 0.021	*** [0 , 1]	-0.114 0.024	*** [0 , 1]
same age	**eval**	0.050 0.054	[0.851 , 0.451]	0.087 0.053	[0.947 , 0.203]	0.077 0.058	[0.897 , 0.242]	0.106 0.060	[0.955 , 0.081]	-0.030 0.060	[0.38 , 0.743]	-0.043 0.052	[0.359 , 0.829]	-0.007 0.055	[0.526 , 0.699]	-0.005 0.059	[0.545 , 0.584]
same gender	**eval**	0.296 0.052	*** [1 , 0]	0.333 0.058	*** [1 , 0]	0.294 0.055	*** [1 , 0]	0.283 0.063	*** [1 , 0]	0.390 0.063	*** [1 , 0]	0.342 0.057	*** [1 , 0]	0.333 0.061	*** [1 , 0]	0.354 0.064	*** [1 , 0]
scp similarity	eval	-0.157 0.136	[0.12 , 0.941]	-0.152 0.130	[0.147 , 0.944]	-0.190 0.141	[0.094 , 0.957]	-0.195 0.141	[0.134 , 0.965]	-0.187 0.157	[0.101 , 0.64]	-0.030 0.126	[0.723 , 0.401]	-0.024 0.129	[0.534 , 0.587]	-0.013 0.143	[0.655 , 0.274]
rsp similarity	eval	-0.022 0.177	[0.533 , 0.398]	0.079 0.168	[0.725 , 0.181]	0.002 0.186	[0.555 , 0.269]	-0.084 0.189	[0.324 , 0.388]	0.109 0.193	[0.507 , 0.125]	0.201 0.197	[0.603 , 0.024]	0.165 0.190	[0.686 , 0.058]	0.149 0.216	[0.51 , 0.05]
sri similarity	**eval**	-0.060 0.142	[0.312 , 0.769]	-0.079 0.134	[0.231 , 0.822]	-0.165 0.167	[0.111 , 0.857]	-0.134 0.156	[0.143 , 0.872]	0.256 0.132	† [0.992 , 0.057]	0.306 0.124	* [0.997 , 0.011]	0.343 0.125	** [0.997 , 0.008]	0.336 0.138	* [0.991 , 0.009]
eri similarity	**eval**	0.233 0.136	† [0.988 , 0.058]	0.314 0.144	* [0.986 , 0.006]	0.221 0.140	[0.967 , 0.049]	0.233 0.146	[0.942 , 0.047]	-0.029 0.155	[0.317 , 0.571]	-0.117 0.130	[0.096 , 0.867]	-0.178 0.162	[0.04 , 0.764]	-0.065 0.153	[0.153 , 0.776]
giv similarity	eval	0.118 0.194	[0.71 , 0.399]	0.159 0.183	[0.794 , 0.276]	0.149 0.202	[0.717 , 0.265]	0.169 0.196	[0.842 , 0.29]	0.162 0.195	[0.78 , 0.4]	0.083 0.190	[0.612 , 0.497]	0.072 0.187	[0.569 , 0.57]	0.253 0.209	[0.79 , 0.334]
stv similarity	eval	0.056 0.125	[0.796 , 0.155]							-0.122 0.149	[0.066 , 0.657]						
sev similarity	eval			0.090 0.117	[0.589 , 0.411]							-0.079 0.145	[0.064 , 0.544]				
cov similarity	eval					0.196 0.172	[0.839 , 0.03]							0.171 0.126	[0.919 , 0.031]		
opv similarity	**eval**							0.517 0.207	* [0.96 , 0]							0.238 0.126	† [0.958 , 0.117]
sat similarity	**eval**	0.363 0.147	* [0.959 , 0.009]	0.362 0.130	** [0.966 , 0.004]	0.316 0.176	† [0.864 , 0.009]	0.232 0.200	[0.592 , 0.017]	0.055 0.114	[0.895 , 0.268]	0.078 0.121	[0.757 , 0.138]	0.035 0.123	[0.694 , 0.208]	-0.033 0.121	[0.582 , 0.493]

		advice networks								friendship networks							
		opv		cov		stv		sev		opv		cov		stv		sev	
effect	function	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p
secondary network selection:																	
1st period	**rate**	3.881 0.604	*** [1 , 0]	4.290 0.702	*** [1 , 0]	4.077 0.737	*** [1 , 0]	3.875 0.628	*** [1 , 0]	10.149 0.870	*** [1 , 0]	9.357 0.793	*** [1 , 0]	9.468 0.836	*** [1 , 0]	9.486 0.843	*** [1 , 0]
2nd period	**rate**	3.290 0.438	*** [1 , 0]	5.789 1.411	*** [1 , 0]	6.167 1.773	*** [1 , 0]	5.599 1.448	*** [1 , 0]	9.429 0.612	*** [1 , 0]	8.953 0.612	*** [1 , 0]	9.181 0.596	*** [1 , 0]	9.137 0.593	*** [1 , 0]
density	**eval**	-1.550 0.107	*** [0 , 1]	-1.567 0.105	*** [0 , 1]	-1.522 0.116	*** [0 , 1]	-1.503 0.108	*** [0 , 1]	-0.383 0.083	*** [0 , 0.986]	-0.379 0.080	*** [0 , 0.99]	-0.344 0.082	*** [0 , 0.983]	-0.364 0.082	*** [0 , 0.987]
reciprocity	**eval**	0.994 0.156	*** [1 , 0]	1.050 0.151	*** [1 , 0]	0.898 0.170	*** [1 , 0]	0.907 0.152	*** [1 , 0]	0.878 0.096	*** [1 , 0]	0.907 0.095	*** [1 , 0]	0.842 0.092	*** [1 , 0]	0.856 0.097	*** [1 , 0]
transformation to	**eval**	0.135 0.209	[0.943 , 0.164]	0.188 0.205	[0.938 , 0.129]	0.173 0.226	[0.853 , 0.17]	0.286 0.252	[0.939 , 0.043]	0.773 0.153	*** [1 , 0]	0.845 0.121	*** [1 , 0]	0.805 0.128	*** [1 , 0]	0.857 0.148	*** [1 , 0]

		friendship networks								advice networks							
		opv		cov		stv		sev		opv		cov		stv		sev	
effect	function	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p	μ_θ σ_θ	fisher's p fisher's [l,r] p
behavior change:																	
1st period	**rate**	1.588 0.218	*** [1 , 0]	1.618 0.222	*** [1 , 0]	1.683 0.269	*** [1 , 0]	1.696 0.263	*** [1 , 0]	1.615 0.200	*** [1 , 0]	1.931 0.234	*** [1 , 0]	1.672 0.217	*** [1 , 0]	1.869 0.247	*** [1 , 0]
2nd period	**rate**	3.087 0.670	*** [1 , 0]	2.618 0.562	*** [1 , 0]	2.466 0.585	*** [1 , 0]	1.953 0.416	*** [1 , 0]	2.290 0.427	*** [1 , 0]	5.047 1.416	*** [1 , 0]	2.241 0.468	*** [1 , 0]	2.360 0.487	*** [1 , 0]
linear	**eval**	-0.360 0.056	*** [0 , 1]	-0.373 0.057	*** [0 , 1]	-0.355 0.059	*** [0 , 1]	-0.336 0.057	*** [0 , 1]	-0.332 0.065	*** [0 , 1]	-0.328 0.059	*** [0 , 1]	-0.285 0.057	*** [0 , 1]	-0.311 0.065	*** [0 , 1]
average similarity	eval	-0.875 0.741	[0.233 , 0.939]	-0.717 0.816	[0.26 , 0.937]	-0.714 0.812	[0.325 , 0.819]	-0.185 0.814	[0.546 , 0.77]	-0.161 1.107	[0.542 , 0.756]	-0.285 0.932	[0.458 , 0.883]	0.303 1.013	[0.622 , 0.734]	0.120 1.066	[0.67 , 0.786]
effect from sat	eval	0.023 0.027	[0.745 , 0.127]	0.021 0.027	[0.753 , 0.139]	0.015 0.029	[0.641 , 0.196]	0.006 0.028	[0.52 , 0.265]	-0.001 0.022	[0.908 , 0.565]	0.011 0.020	[0.913 , 0.267]	-0.000 0.022	[0.829 , 0.416]	0.004 0.021	[0.813 , 0.483]
goodness of fit:		μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]	μ_p σ_p	χ^2 test [converge / fit]
GOF (outdegree)		0.365 0.317	*** [33 , 25]	0.357 0.315	*** [35 , 27]	0.328 0.283	*** [34 , 26]	0.361 0.319	*** [36 , 29]	0.396 0.274	*** [35 , 34]	0.414 0.296	*** [34 , 33]	0.398 0.257	*** [34 , 33]	0.448 0.298	*** [36 , 33]
GOF (behavior)		0.360 0.256	*** [33 , 26]	0.353 0.255	*** [35 , 25]	0.346 0.248	*** [34 , 26]	0.357 0.252	*** [36 , 27]	0.322 0.259	*** [35 , 29]	0.302 0.255	*** [34 , 27]	0.339 0.274	*** [34 , 27]	0.283 0.252	*** [36 , 31]

$^{***}p < 0.01$, $^{**}0.01 < p < 0.05$, $^{*}0.05 < p < 0.1$, $^{\dagger}p < 0.1$

6.5 Discussions

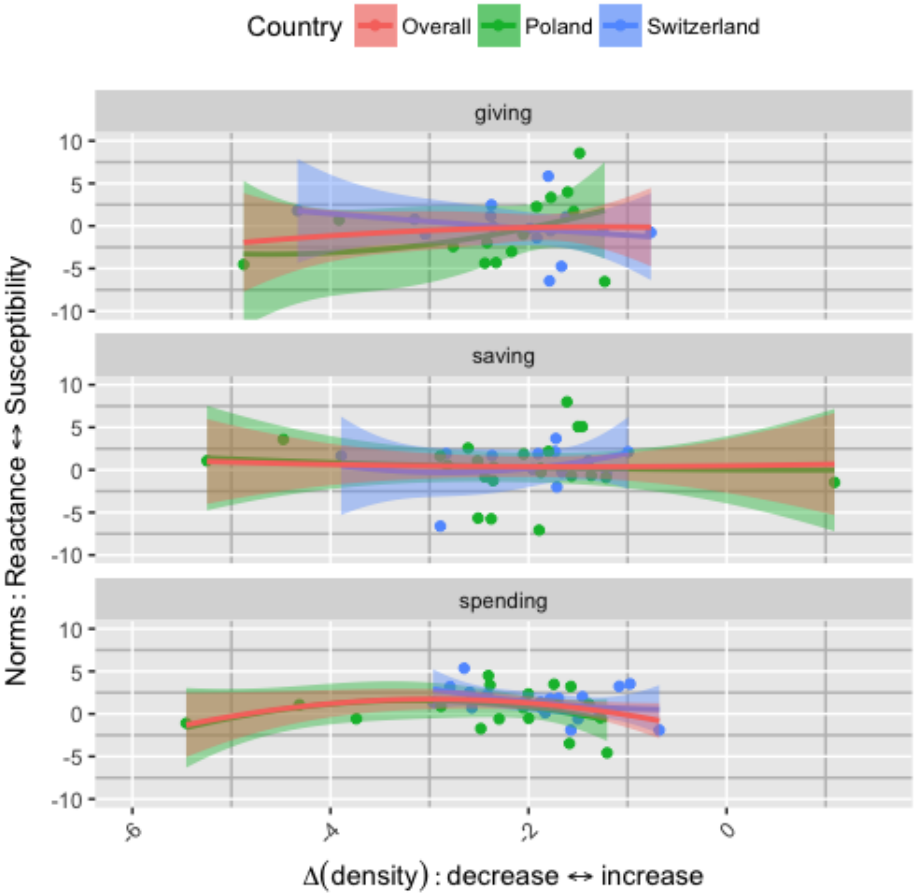

Figure 6.4: *Susceptibility to normative financial decision making practices vs. density in friendship networks: Based on the results of the meta analyses in Appendices 6.22, 6.23 and 6.24*

y-Axis: Estimations for average similarity effects on the class level, interpretation of positive effects as susceptibility or convergence towards social norms and negative effects as reactance or divergence from social norms concerning allocations of financial resources to spending, savings or donations.
x-Axis: Estimations for the change in density on the class level.

Curriculum Vitae | Martin Kindschi

Personal details

Date of birth:	May 2nd, 1983
Nationality:	Swiss

Education

April 12 – February 19	Doctoral program at the Chair for Marketing and Market Research, Department of Business Administration, University of Zurich, Switzerland.
October 09 – April 12	Master of Arts in Business Administration, University of Zurich, Switzerland, including ERASMUS exchange semester at Umeå University, Umeå, Sweden (August 10 – February 11).
October 05 – October 08	Bachelor of Arts in Business Administration, University of Zurich, Switzerland.

Professional experience

April 19 – present	Project Manager, Jacobs Center for Productive Youth Development, University of Zurich, Switzerland.
February 15 – October 18	Research associate and operational project leader, URPP Social Networks, Department of Business Administration, University of Zurich, Switzerland.
October 11 – February 15	Teaching assistant for the courses "Quantitative Market Research I, II" and "Introduction to Data Driven Marketing", Chair for Marketing and Market Research, Department of Business Administration, University of Zurich, Switzerland.
August 08 – August 09	Internship in the reinsurance department at Helvetia Insurance Company, St. Gallen, Switzerland.